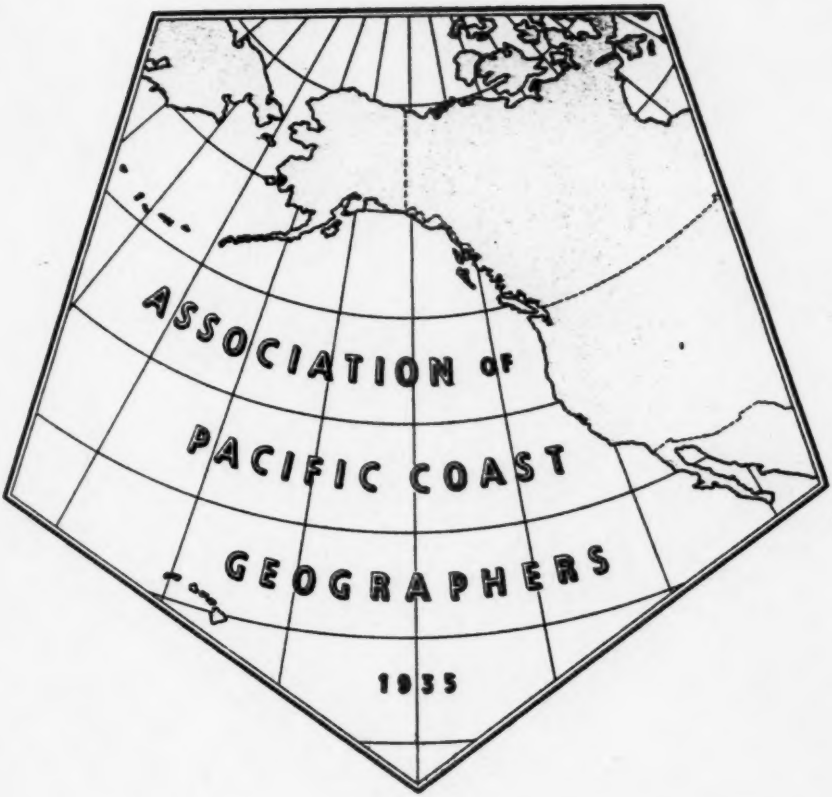

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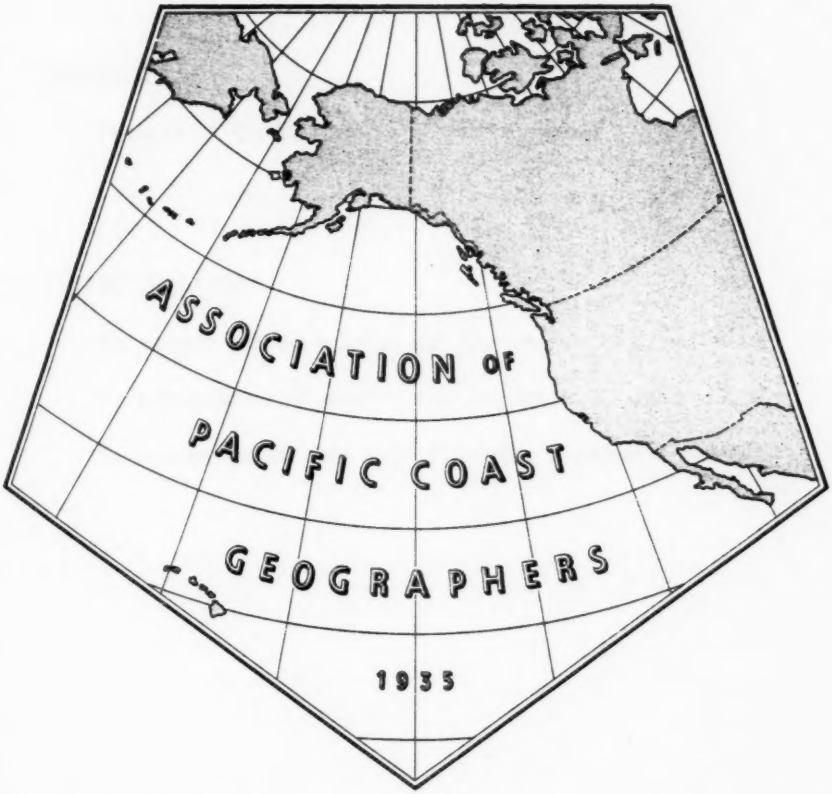

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THE EJIDO IN MEXICO: An Agrarian Problem

J. GRANVILLE JENSEN
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The ejido is "the fruit of the Revolution" initiated by Emiliano Zapata in the fall of 1911. Its concepts were nurtured by injustices and excesses associated with expansion of the great estates, by which a few had come to live in luxury and power while the many existed in an economic and social status scarcely better than slavery.[1] Thus the oppressed were rallied around the battle cry of "land and liberty"—in essence, the idea that the land belongs to him who works it.

Probably no peaceful solution was possible. In any case the agrarian reform, of which the ejido is the main theme, was born with violence and political animosity which in a measure continues today.

The concepts of the agrarian reform, as created in the law of January 6, 1915, and introduced into the constitution in 1917 as Article 27, are simple. The inalienable right of the peasant to agricultural land was affirmed. Lands dispossessed by the expanding estates were to be returned and grants of land made to communities. In short, the former feudal system of the latifundia was cancelled.

The legal mechanics of the agrarian reform were developed during the first few years and, with modifications, still apply. The main points of concern here are: (1) Only rural communities may receive land donations. Any such community may petition the government for donations of land to create an ejido. (2) Grants of lands to form an ejido can be given only from properties within seven kilometers radius of the petitioning community. (3) Private owners are permitted to select and retain up to 100 hectares of irrigated land or 200 hectares of nonirrigated land. (4) Pasture and forest lands are utilized as communal property of the ejido. (5) Water rights are vested in the ejido. (6) Through the community each family head may receive inalienable right to cultivate a specific parcel of land and to the produce of his labor. The right is inherited but may not be divided. Land parcels may not be sold, mortgaged, or rented. If not cultivated for two years, the right is forfeited and the land returned to the community for reassignment.

Growth of Ejidos

Chiefly because of strong political opposition and lack of leadership dedicated to agrarian reform, changes in land tenure were surprisingly

[1] For a review by a contemporary Mexican agricultural leader see: Ramon Fernandez y Fernandez, "La Reforma Agraria Mexicana: Logros y Problemas Derivados," in *El Trimestre Economico*, Vol. 24, No. 2, April-June 1957, p. 143-159, Mexico City.

slow after Article 27 was included in the Constitution. Then in 1934 Lazaro Cardinas rose to the Presidency of Mexico as the strong leader of agrarian reform. The graph, Fig. 1, representing lands definitely granted to ejidos from 1915 to May 1957, shows the vigor with which land donations were made during his six years of office. Since Cardinas, creation of ejidos continues but at a lesser rate. In recent years about half a million hectares have been donated each year.

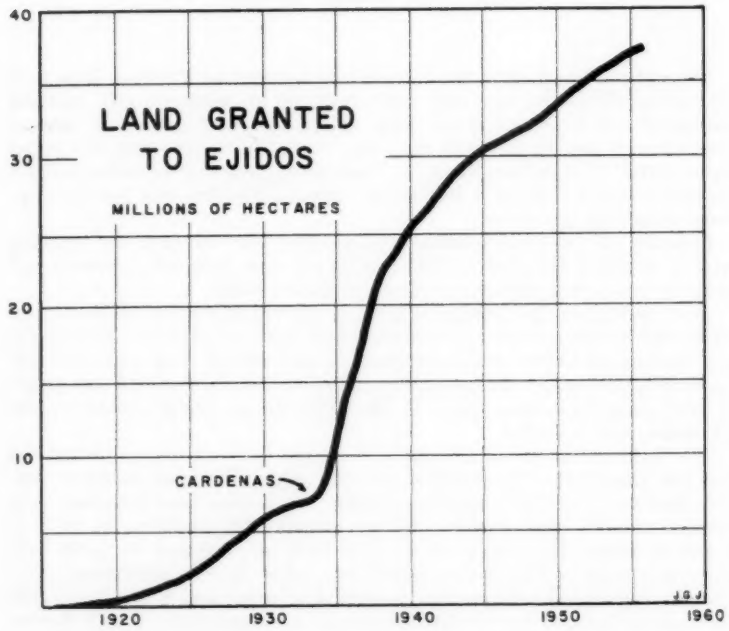

Fig. 1

An illustration of the formation of ejidos at the expense of the large estates is presented in Fig. 2, which shows a selected portion of land in the Toluca Basin west of Mexico City. On the 1936 map the ejido received by the Pueblo de Almoloya de Juarez is shown in black. The largest land area for this ejido was taken from the Hacienda San Martin La Puerta and a small piece from the Hacienda San Isidro. The 1950 map of the same area shows the fragmentation of the hacienda as additional ejidos were authorized by the government. Theoretically, compensation was given for private lands taken for ejidos, but in practice the lands were confiscated apparently with more regard for political connections than for evaluation of land-use. A similar pattern of land division has been accomplished and is continuing throughout Mexico.

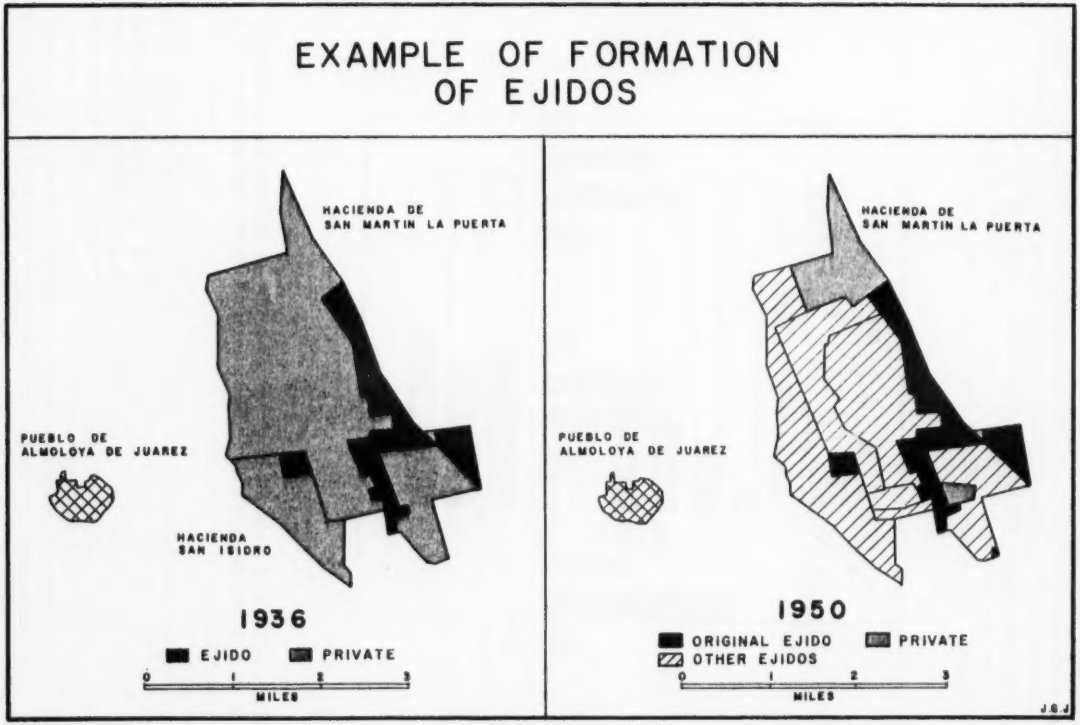
EXAMPLE OF FORMATION
OF EJIDOS
HACIENDA DE
SAN MARTIN LA PUERTA
PUEBLO DE
ALMOLOYA DE JUAREZ
HACIENDA
SAN ISIDRO
1936
EJIDO
PRIVATE
0 1 2 3
MILES
HACIENDA DE
SAN MARTIN LA PUERTA
PUEBLO DE
ALMOLOYA DE JUAREZ
1950
ORIGINAL EJIDO
OTHER EJIDOS
PRIVATE
0 1 2 3
MILES
J.G.J

Fig. 2

Importance of Ejidos

The graph, Fig. 3, shows the expansion of the ejidos to become the most important single land ownership class in Mexico. In 1956 there were 20,316 ejidos, holding a total of 43,056,400 hectares, of which 10,600,000 are cultivatable lands.[2] Thus ejidos account for 30 per cent of all census lands of 50-52 per cent of the nation's croplands.[3] As of 1956 donations of lands to ejidos has benefited 2,150,750[4] heads of families or about 10.7 million individuals, representing 35 per cent of the total population and 65 per

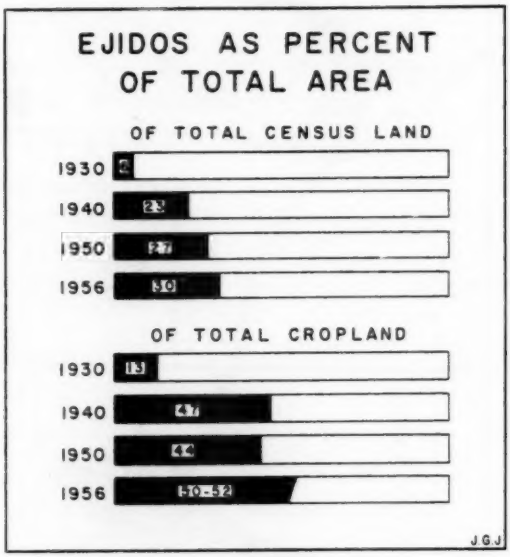

Fig. 3

cent of the rural population of all Mexico.[5] Ejidatarios now account for 38 per cent of Mexico's agricultural labor force—an increase from 29 per cent in 1950.

[2] Secretaria de Agricultura y Ganaderia, *Informe de Labores*, p. 119, Mexico City, 1956. The larger area given here is shown on the graph (Fig. 1) and includes ejidos which have not been finally legalized by the Departamento Agrario.

[3] 1950 Census area 145,516,943 hectares, cropland 19,928,261 hectares. No official data are available for 1956, but it is unlikely that more than a million hectares of new croplands have been added.

[4] 1956 data from Departamento Agrario.

[5] Total ejidal population interpolated on basis of an average of 5 persons per family. Population of Mexico in 1956 was 30,538,050, including a rural population of 17,070,365. The agricultural labor force increased from 4,823,901 in 1950 to 5,711,776 in 1956. *Anuario Estadistica de Los Estados Unidos Mexicanos*, Mexico City, 1957.

Present indications are that the ejido as a land system will come to have even greater importance. Three conditions may be noted in support of this position: (1) Newly elected President Adolfo Lopez Mateos has openly supported the concept of the ejido. (2) Occurrences of near violence against large private holdings especially in the Pacific North of Mexico. (3) Published suggestions for increasing the radius of ejido formation from 7 kilometers to 20 kilometers and reducing the legally protected maximum size of private farms.[6]

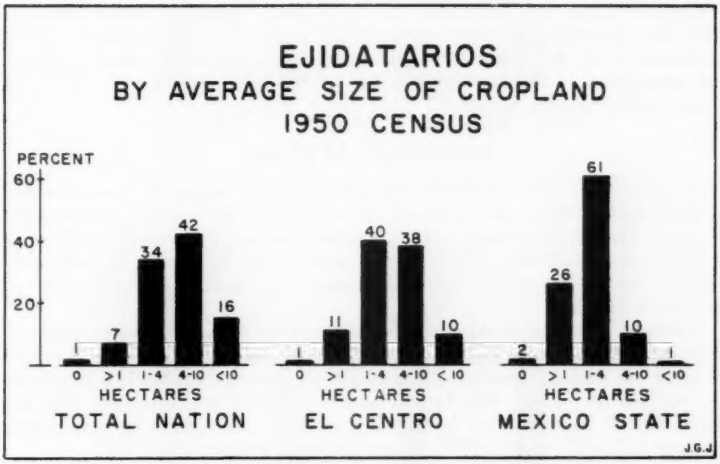

Fig. 4

Size and Management

Published census data (1950) shows that only about 3 per cent of the ejido croplands are utilized communally, and these are mainly in the cotton growing areas of the North and in the henequin growing area of Yucatan. Typically, the ejido is fractionated into family parcels which are tilled and harvested individually. The graph, Fig. 4, shows the distribution of ejidatarios according to average size of the family parcel of cultivatable land. For the nation as a whole, 1 per cent have no land, 7 per cent less than one hectare, 34 per cent only 1 to 4 hectares, 42 per cent 4 to 10 hectares, and 16 per cent over 10 hectares. In the most populous states as represented by the statistical group known as Centro and especially Mexico State, small size is even more dominant. In the Centro section, which

[6] For example, see "La Situation Agricola National," *Circular de Estudios Mexicanas*, Mexico City, 1957.

accounts for 47 per cent of all ejitarios of the nation, the distribution is 1 per cent with no land, 11 per cent under one hectare, 40 percent 1 to 4, 38 per cent 4 to 10, and 10 per cent over 10 hectares.[7] For the state of Mexico the census shows 2 per cent with no land, 26 per cent with under one hectare, 61 per cent with 1 to 4, 10 per cent with 4 to 10, and only 1 per cent with more than 10 hectares.

The agrarian land reform as it has been implemented over the years has dissected half the croplands of Mexico into a multitude of small parcels.

This then is the state of the ejido. We may now ask some pertinent questions. Has Mexico exchanged one faulty land-tenure system for another that is equally faulty? What is the effect of land dissection on resource utilization? Does the ejido form of land tenure result in lesser responsibility for adequate resource stewardship? Does the ejido obstruct implementation of modern agriculture? Does the ejido perpetuate rural poverty? Are ejidatarios as efficient farmers as private landowners? Are ejidos as productive as private lands?

Productivity of Ejidos

In view of Mexico's expanding population and niggardly resources for agriculture, it is especially pertinent to inquire into the relative productivity of ejidos and private lands. Many ownerships were observed in all sorts of environments. There is no simple answer for, as would be expected, there are examples of poor as well as excellent land-use on ejidos just as on private holdings.

However, one may readily demonstrate that the ejidos are less productive. In quantitative comparison of crop yields per hectare, the ejidos lag in nearly all cases. In corn production, for example, the census records 740 kilograms per hectare for ejidos, 908 for ownership under 5 hectares, and 855 for those over 5 hectares; for irrigated wheat the corresponding production data are 875, 987, and 1184 kilograms per hectare. (See table one).

Table One

COMPARISON OF CROP YIELDS PER HECTARE[8] IN KILOGRAMS

	Ejidos	*Under Five Hectares*	*Over Five Hectares*
Corn (alone)	**741**	**908**	**855**
Wheat (irrigated)	**875**	**987**	**1,184**
Beans	**353**	**599**	**427**
Cotton	**889**	**1,158**	**999**

A recent report by a Mexican scientist, based on study of 190 ejidatarios and 214 private owners in the Celaya area of Guanajuato State in Central Mexico, reaches the same conclusion.[9] The graph, Fig. 5, includes selected

[7] *Tercer Censo Agricola, Ganadero y Ejidal 1950*, Mexico City, 1956.
[8] *Ibid.*
[9] Unpublished study by Carlos Manuel Castillo.

data. The agricultural operations have been grouped into four types: type one is corn and wheat with alfalfa and dairy cows; type two is corn and wheat with extensive cultivation of beans and chick peas; type three is corn and wheat; and type four is intensive cultivation of horticultural crops. The upper part of the graph is especially significant since it shows that in

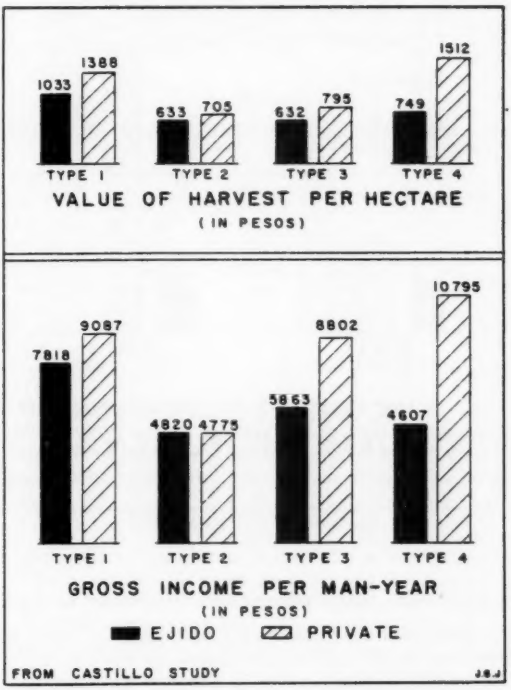

Fig. 5

production per hectare the ejidos increasingly lag behind as intensity increases. The lower portion of the graph indicates the same result but on the basis of income per man-year of work.

Selected census data for the state of Tlaxcala, one of the poorer central states, is given in the graph, Fig. 6. Income per hectare on the ejido is only 235 pesos, compared to 361.8 pesos on holdings of less than five hectares, and 633.6 pesos on holdings with over five hectares. Agricultural income per capita on ejidos is only 196 pesos, compared to 1,065 pesos on holdings under five hectares and 1,391 pesos on holdings larger than five hectares.[10]

[10] *Tercer Censo Agricola, Gandero y Ejidal.* Also see the excellent study by Gilberto Fabilia, et al, *Tlaxcala, Tenencia y Aprovechamiento de la Tierra,* Centro De Investigaciones Agraria, Mexico City, 1955.

The evidence indicates that the ejidos are not as productive as private holdings. This lesser productivity is a symptom of the major problems of he ejidos.

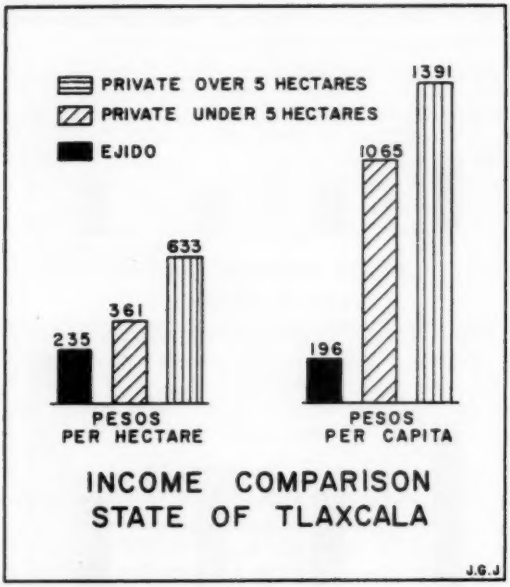

Fig. 6

Ejidos Obstruct Implementation of Modern Agriculture

The ejido system has characteristics which cause it to be an obstruction to full implementation of modern agricultural science and technology which could lead to greater production. The practice of fractionating the cultivated land into family parcels created over two million individual ejido farm operators, many unprepared for land management and with little knowledge of modern agriculture, and usually with land for only a part-time occupation to grow corn for food.

Against this multitude of operators on the land, implementation of modern agricultural science and technology is dissipated in sheer numbers. Considerable is being done, but the fact is that inadequate support is provided for the essential service of field agricultural assistance. In all Mexico there are only 192 federal "county agents," and their time is mainly devoted to helping the private operators. By contrast the United States, with only about 20 per cent greater number of farm operators, is supporting 6,951 county agents.[11] What the ejido system needs is an adequate "county agent" program specifically for ejidatarios!

[11] The 1950 Census of the U.S. shows 5.4 million farms. Counting ejidatarios with individual parcels as farm operators, Mexico has about 4.5 million farms.

Inadequate Agricultural Credit

Ejidatarios have no title to land, and, therefore, they cannot generally utilize normal credit sources. The national government of Mexico, recognizing the need for a special source of credit, established the ejidal bank.[12] Its operations have done much to improve land utilization on ejidos, but too small a percentage of the ejidatarios are receiving aid. In 1956, 833.5 million pesos of credit was extended to aid 336,541 ejidatarios. But only 16 per cent of all ejidatarios were aided by the bank, an actual decline from 20 per cent in 1950 (Table Two).

Table Two

OPERATION OF BANCO NATIONAL DE CREDITO EJIDAL[13]

1950	*Pesos Loaned*	*Ejidatarios Benefited*	*% for Crops*	*% for Irrigation*	*% for Machinery*	*% for Industry, etc.*
1950	204.01	277,257	92.5	2	2.2	2.1
1951	279.4	229,695	86.6	1.5	8.5	2.9
1952	270.4	234,380	83.6	8.7	4.2	1.7
1953	419.8	312.859	89.8	5.3	1.8	2.8
1954	543.7	347,996	90.1	3.8	0.9	4.6
1955	604.6	335,492	90.5	4.1	1.9	2.2
1956	833.5	336,541				

Inasmuch as the government in effect holds title to the ejido lands, expansion of credit assistance to aid more ejidatarios is essentially a problem of the government of Mexico. Of course an essential cognate to financial aid is the expansion of technical leadership for those who receive aid.

Resource Stewardship

Does the ejido system of land tenure result in poorer resource stewarship than is practiced on private holdings? Perhaps, but the evidence is certainly not conclusive. One sees horrible examples of needless erosion on private lands just as on ejidos. However, the ejido, because of fractionation of the land, is more often enmeshed in a vicious circle that results in poor stewardship. In addition, cultivated lands of ejidos more frequently occupy slope lands where erosion potential is considerable. The ejidatario usually has but one to four hectares of land which must provide the food for his family. What choice does he have but to grow corn year after year, even though erosion results? He lacks capital to purchase magueys or fruit trees which would help check erosion and improve his income. Much erosion control could be accomplished by ejidatarios with only their labor, but they frequently lack leadership. Moreover, to do these things requires cooperation by many family heads for a single parcel holder can do little by himself.

Need for Size Adjustments

Too many ejidatarios are operating parcels that are too small to provide full-time employment, capital for improvement, and to produce a reasonable standard of living for the family. In other words, there are two many

[12] Formally established in 1935.

[13] *Informe, 1956*, Banco Nacional de Credito Ejidal, Mexico City, 1957.

farmers on too little land. Some way must be found to enlarge agricultural rights for those who demonstrate skill and interest in farming and to remove some who have little interest in land stewardship. Accomplishment of this point will require modification of a liberalizing nature in the legal restrictions governing ejidos and a departure from the basic concept that every family should have its plot of food-growing land. Such changes are probably not going to be long in coming, because many extra-legal practices are known to exist which are adjustments in this direction. The government has recognized the need for larger parcels in its recent policy of requiring ten hectares per family in newly formed ejidos. Unfortunately, this policy comes too late and, moreover, is too rigid to comply with needs of varying environments. There is a real need for more geographic research applied to the problem of the ejido—especially from the point of view of adjustments to environmental realities.

Conclusion

The ejido has become Mexico's most important land ownership class. The agrarian reform has accomplished the goal of providing land for the camposinos and freedom from the oppression of the estates. But there has been ill-conceived fractionating of land and lack of adequate planning to meet the needs of the new system. The ejido has become an agrarian problem!

The solution is not to do away with the ejido, but rather to strive to correct its faults. There is need for adjustments to introduce some flexibility in the law and in the concepts of the rights to agricultural lands. There is need for greatly expanded service programs of education and credit designed to foster intensification of agriculture and to implement practices of land and water conservation on the ejidos.

There is no lack of knowledge of what can and should be done, but there exist major obstacles in the form of political inertia and conflicts of interest, inhibiting effects of rural poverty, and dissipating effects of the multitude of small operators on the land. There will be no easy or quick solution to the agrarian problems of the ejido and improvements will be frustratingly slow. Nevertheless, the future well-being of Mexico depends in large measure on how the agrarian problem of the ejido is handled.

PROSPERITY IN CONTEMPORARY JAPAN: A Contradiction to the Concept Of Overpopulated Japan*

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University of Hawaii

Japan has undergone many changes in recent years. At the end of World War II her cities, industries, and distribution systems were almost destroyed. Recovery was slow at first, but since 1950 industrial and agricultural production have expanded with increasing rapidity, and the prevailing high level of prosperity indicates a need to reappraise the geographic background of Japan and to bring our textbooks up to date. Many contemporary writers stress the concept of "poor little Japan," quoting statistics and giving arguments which emphasize the small area, the large and growing population, the poverty of mineral resources, the limited amount of land available for crops, the impossibility of mechanizing small fields, and the impossibility of remedying these conditions.

These are the same arguments which have been used in the past for empire building, colonization, and preferential trade treatment. How valid are these reasons? Japan does have problems which arise from a large population and a small area, but even a casual observer in Japan today will note that the country is in the midst of a major boom. The people are healthy, well-fed, and well-dressed. Everywhere modern buildings, factories, power plants, and housing units are under construction. Closer investigation reveals that luxuries unavailable to the Japanese people in the past, and still unattainable by most of the world's people, are becoming more and more common. Electrical appliances are now an accepted part of the life of the average Japanese. The total value of electric fans, washing machines, refrigerators, radios, and television receivers produced in 1950 amounted to only 7 million dollars. In 1957 the value of the same articles produced and consumed within the country had increased to 240 million dollars.

Department store sales have grown from 191 million dollars in 1950 to 860 million dollars in 1957—a 450 per cent increase. In 1952 there was one motor vehicle for every 113 persons; in 1957, one for every 45 persons. In January, 1958, there was one registered TV set for each six families in Tokyo. The monthly rate of increase was over 16,000 registered sets, an estimated 10,000 unregistered sets, plus many more "do it yourself" receivers. On a national basis there was one TV set for every fourteen households, one electric washing machine for every six, and one electric refrigerator for every thirty.

The current wave of prosperity which is changing life both in the cities and on farms is commonly called the *Jimmu Boom*, or the most prosperous

* Presented at the 54th Annual Meeting of the Association of American Geographers, Santa Monica, August, 1958.

period since the reign of the first emperor, traditionally about 2600 years ago. The fact that such a boom has been able to exist for the last five or six years is proof that the Japanese people can develop and maintain a high standard of living with the physical resources of their country. Within the same area a century ago 30 million people suffered from recurrent famines, but today 94 million people prosper. The accomplishments which have made this possible are a tribute to the energy, imagination, and work habits of the Japanese.

According to standard references, the amount of cultivated land varies from 15 to 18 per cent of the total area, and these references doubt that much can be done to increase the arable land. At first glance this seems to be very little land to produce sufficient food to support 94 million people. However, the actual figures and their significance should be examined before considering the fact that most nations with an industrial structure comparable to that of Japan must import sizable quantities of food.

Fig. 1. Kokubunji, Okayama Prefecture. Dry crops on the terraces in the foreground, wet rice fills the floor of the valley, and newly planted tree crops are invading the lower slopes of the mountains.

The Ministry of Agriculture and Forestry reported that the land under cultivation in Japan is 14,853,024 acres, with about 55 per cent in wet rice paddy and the remainder in dry fields which produce cereals, vegetables, and tree crops. These government figures are based upon tax records, but field observation indicates that the Japanese farmer is highly successful in evading taxes. Actual surveys in different parts of the country show that some fields are 50 per cent larger than recorded at the local tax office, while others are not recorded at all. Such practices appear to be general through-

out the country. Upon being asked how they were able to accomplish this deception, one farmer replied that if the tax assessor was born and raised in the country he was on the side of the farmers and that if he was born in the city they did not worry about him. A conservative estimate would be that the land under cultivation is at least 10 per cent higher than recorded in the official statistics.

Much of this land is double cropped; some fields produce as many as five crops in one year. Most of the land south of the northern edge of the Kanto Plain produces winter crops of wheat, barley, vegetables, or special cash crops such as flowers, *igusa*, or peppermint. Interplanting frequently results in vegetables being produced between rows of mulberry or winter wheat. In effect, this usage at least doubles the acreage in food production.

Thus, if consideration is given to the amount of land interplanted and double cropped, the slope land newly planted in orchard crops, and the amount of land not appearing on tax records, the total effective acreage

Fig. 2. Village of Niike, Okayama Prefecture. Vegetables and Mediterranean type grapes are grown in the greenhouse for the early urban market. The road was constructed recently for easier movement of farm machinery.

Fig. 3. Yuzawa, Akita Prefecture. A power sprayer with an insecticide is being used to protect the cherry crop. Scientific agriculture is greatly increasing yields.

under cultivation is much greater than the usual figure of thirteen to fifteen million acres.

The value of an acre of good rice-paddy land in southern Japan compared to the value of an acre of sand in the Sahara Desert or an acre of land as now utilized in India should also be recognized. Japan does suffer at times from typhoons, unusually cool summers, insects, and blights, but, with a high rainfall generally well distributed for optimum rice production, few countries are so blessed by nature with potentialities for high food production per acre. The Japanese capitalize on these potentialities. Each year they are finding answers to some of the hazards of climate and blight.

In contrast to the rest of Asia, the farmers of Japan are literate. They read newspapers and farm bulletins published by the local agricultural experimental stations, get the weather forecasts and market reports from their

Fig. 4. Bizen Chō, Okayama Prefecture. A gasoline engine from a tractor furnishes power for threshing wheat in the spring.

Fig. 5. Yuzawa, Akita Prefecture. A light "tractor" used to prepare fields for rice is readily lifted over the small dikes between fields. Because Yuzawa is north of the zone of double cropping of rice and a winter crop, speed in preparing the land for rice is not critical. Even under these conditions mechanization is popular because it makes the work lighter.

radios, and employ modern scientific agricultural methods. The fields are small but the yields are high. On the best rice producing lands yields are as high as 75 bushels an acre. The obsession with rice as THE food for human beings encourages rice production in northeastern Honshu and Hokkaido where climatic conditions are less favorable. Consequently, the national yield is lower, 41 bushels per acre, which is still high in contrast to the average yield in India which is only eight bushels per acre. In effect this means that one acre of rice land in Japan is the productive equivalent of five to nine acres of rice land in India. The yields in the north are steadily

increasing because of improved varieties of rice adapted to a shorter growing season, better use of fertilizer, and mechanization. In spite of adverse weather, the largest rice crops on record were harvested in the last three years, 1955-1957. Increasing yields have encouraged the Ministry of Agriculture and Forestry to forecast self-sufficiency in rice production despite the steadily rising population curve.

The introduction of motors to provide power for irrigation and the widespread use of power cultivators have greatly reduced the time needed to prepare and cultivate fields. A power cultivator adaptable to either wet or dry conditions saves the farmer ten to fifteen days in preparation for rice planting, thus permitting him to transplant his rice to the field at an earlier date. He is also less affected by the vagaries of the weather. Mechanized threshing machines found on nearly half of the farms save still more time. While part of this freed time goes to ease the life of the farmer, some is also used to increase orchard and other slope crops. The recent increase in vineyard, apple, pear, peach, and citrus acreage is much greater than appears in government figures.

Changes in the national diet are resulting in changed land use as well as the utilization of new lands for food production. Although in Japan rice is almost synonymous with food and the Japanese are as conservative as other people in their food habits, certain changes in the diet are occurring. More vegetables, meat, eggs, and dairy products are being eaten than ever before. The increasing number of chickens on the farms has been one of the conspicuous changes since my first contact with Japan 19 years ago. The introduction of power cultivators, which replace work cows or horses, permit farmers to raise a milk cow with the fodder formerly used by the draft animal and still have manure for his fields. Throughout the country many farmers now have one or two milk cows in place of the former draft animals. On a larger scale dairying is utilizing upland pastures. Thus areas such as the Kitakami plateau in Tohoku are now food producers for the first time. Where sericulture has been abandoned, some areas are raising vegetables or fodder crops for cattle. Bottled milk, a rarity in the big cities nineteen years ago, is now commonplace in the villages as well as the cities, and there is rural milk delivery. Cheese, once considered repugnant except to the most cosmopolitan Japanese, is sold even in small towns.

Despite the increased farm production, Japan must import food, but so do other modern, highly industrialized nations. Furthermore, it might be stressed that Japan's reliance upon imported foods is less than that of the United Kingdom.

Mineral resources, as pointed out by Ackerman and others, are far from insignificant. No other area of comparable size is as rich in minerals. There are reasonably adequate amounts of coal, copper, molybdenum, manganese, sulphur, chromium, lead, zinc, gold, silver, and uranium. There is some iron ore, and considerable progress is being made in adapting iron pyrite and iron sands as a source of iron. At present a major portion of Japan's iron ore and some coal of special grades are imported. Almost all of her petroleum is imported. However, all highly industrialized countries import minerals and the longer and more highly the country is industrialized, the more it must rely upon outside sources. In the case of Japan, the industrial leaders have taken advantage of the national supply of minerals and by hard work, skill, and imagination, have used them in the development of an economy which enables them to obtain other needed minerals by trade.

With the technical lead that Japan has over all but a few of the nations of the world, there is every reason to anticipate continued expansion.

A hydroelectric power potential is one resource that Japan does have in abundance. Relying chiefly upon thermal power, Japan turned to electricity very early and by 1925 had almost complete rural electrification. Since World War II, however, greater advantage has been taken of the hydropower potential; the 1954 production of electricity was more than twice the pre-1945 peak. When completed, facilities now under construction will double the 1954 output. Japan now ranks third in the world in per capita consumption of electric power and has by no means neared the limit of her potential.

Conclusion

A small country with many people, Japan does not suffer from absolute overpopulation. The official agricultural statistics considerably underestimate the amount of effective land in food production. Furthermore, the land has high productivity because of favorable physical conditions coupled with the hard work and intelligence of Japanese farmers. Changing food habits are changing the traditional land use patterns and bringing new acreage into food production. As a result rural Japan is experiencing unprecedented prosperity. At the same time, intelligent exploitation of the physical resources of the country stimulated the expansion of industry and trade. Thus the critical relationship appears to be not area to population but productivity to population.

THE ROLE OF THE FIELD CAMP IN GEOGRAPHIC TRAINING

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A geographer should take to field work as naturally as a duck takes to water. Observation of phenomena in the field is part and parcel of geography: it always has been, and it must always be so, for geography is primarily concerned with place, and place is best described through field observation. In some branches of geography, the field work can be carried on by proxy—as where the census taker does the field work, assembling the facts in tabulated form for the geographer. But in most such cases something is usually found wanting, for the census taker is not a geographer, does not fully know the geographer's interest, and hence does not observe all that a trained geographer would.

Thus, reference to census data often saves much valuable time and provides information not readily available to the geographer but is not a total substitute for field work in most branches of geography. In other instances, the study of aerial photographs can serve as partial substitution for direct field observation, but a certain amount of personal familiarity with the area under study is necessary as a prerequisite for efficient use of aerial photographs, and full familiarity is gained only by personal observation on the ground. Some geographers who will deny this are overlooking the facts that they have already an inherent understanding of the area under study based on long familiarity with similar regions, and that they would have a much more difficult time in a region with which they are totally unfamiliar on the surface.

Field work can be extremely confusing and time-consuming if not properly organized. The observer in an area is faced with a welter of impressions. From them he must be able to select those relevant to his work and to disregard the remainder. To know what is relevant is something that only the individual worker can decide. He alone knows the aims and scope of his intended research. At the same time, it must be decided by what method the observations are to be recorded. A number of procedures are available to the observer; based upon his needs, he must select the most effective.

Depending upon the amount of time available to the researcher and the degree of refinement required of his study, various approaches may be used in the field. If only a sweeping generalization is desired, reconnaissance techniques will suffice. If a more thorough appraisal of the area is the aim, a combination of reconnaissance techniques with representative transects or other forms of sampling may be in order. If the end result is to be a complete areal inventory, it may be necessary to make a detailed survey of the

entire area, field by field and block by block. Again, only the fieldworker is capable of deciding the technique to be employed.

Intimate knowledge of all techniques and the scope, advantages, and shortcomings of each should be part of the inherent knowledge possessed by every geographer. Such familiarity is not easily obtainable by reading. It is only by having used them in the field himself that the geographer can become fully appreciative of their utility.

Exposure to such experience can best come in the early part of the graduate program. At that stage of development the student has acquired most of his background in fundamentals and is only beginning to specialize. With the necessity of doing field work for his own thesis or dissertation in the immediate future, he is particularly receptive to such training. To provide such training should be the primary purpose of a field camp.

Since the writer has had over a decade of experience in the operation of such a field camp in conjunction with the geography graduate program at the University of California, Los Angeles, it is perhaps appropriate here to describe in detail the functions of that camp in fulfilling the aims set out above.

The camp does not attempt to teach the geography of southern California. Field trips can be an important adjunct in the teaching of regional courses, but a graduate field camp should be concerned with techniques and approaches to *any* area and not limited to the study of one area *per se*. Nor does the camp specialize in any single field of geography. Land forms are viewed as one of the many elements entering into the totality of the geography of the area being studied but are not studied exhaustively in their own right. The same is true of the vegetation, the soils, the agricultural, and urban patterns. Sufficient attention is given to each so that the student can appreciate and evaluate its role in the total geographical picture.

Three types of areas are studied in several different ways. At the very outset of the course the students are given a rapid reconnaissance of a fairly simple area (a desert basin) and then asked to present orally a geographical description of it. It is a rare student indeed who presents anything other than a chaotic jumble of unrelated observations. The exercise impresses the average student with his own inability to observe critically, to evaluate the observations, and to organize them into an orderly, logical presentation.

The ensuing week is spent in breaking the landscape into its component elements and analyzing each of them in detail. The first day is devoted to land forms—the vast alluvial fans, the playas, the pediments and *inselberge*, the fault scarps, and the rugged mountain *massifs*. On the second day the vegetation is studied—the vertical zonation from sparse shrubs to pine forest; the halophytic, xerophytic, hydrophytic, and riparian associations; the *adret* and *ubac* contrasts; the relation of the vegetation to the native and introduced fauna. On the third day, visits are made to a range-cattle operation and a small mine, in order to view the human utilization of the unirrigated desert. The following day is devoted to the soil and the irrigated agricultural area. The final day of field work is spent in visits to a chicken ranch, local business establishments, and a real estate dealer, in order to learn of the impact of the neighboring Los Angeles metropolitan area upon this desert basin.

The days are spent in observation and in gathering information; evenings are times of digesting and evaluating these data and impressions. In the cool of the desert evening, the group discusses the day's observation, seeking

for generalities and patterns often overlooked in the daylight. Such introspective intervals yield valuable results. It is then that the whole picture of the area begins to form in the student's mind, that the insignificant details sink into insignificance, and that the major patterns begin to stand out in relief.

The week's work culminates in the writing of a report on the area—a report written in pencil, in sentence outline form, in the course of a few hours out of doors, and in the very region being studied. It is accompanied by a sketched outline of such maps as are deemed worthy of inclusion. Good observation, logical deduction and balanced, orderly presentation are the goals, rather than neat cartography or precise grammar. The former are the end results of the field work; the later can be developed in the cartographic laboratory or in the classroom.

Each report is aimed at an audience of mature geographers—readers of the *Review*, the *Annals* or the *Yearbook*. Hence, it can be assumed that the reader is familiar with geographic terminology—but not with the details of the local situation. Each student reports on the same area, selecting a theme on which to focus, omitting the irrelevant aspects, and then emphasizing such phenomena as are relevant to his theme. Topics are likely to range widely: "Physical Factors Influencing Plant Growth"; "The Sequent Occupance Pattern"; or "The Role of the Los Angeles Metropolitan Area in the Development of a Desert Basin."

When the reports are completed, the group meets in outdoor seminar. Each man presents his study orally, and it is discussed by the group. This is a most valuable exercise, for at the graduate level the students learn far more from each other than from the professor.

The second area studied, a coastal valley, is far more complex, and the report finally written upon it is more detailed and more varied than the preceding. The group spends its first several days in a general reconnaissance of the entire study area and in learning certain technical aspects of its agriculture. Several more days are devoted to familiarizing the student with various types of note-taking in the field. Small, highly-varied areas are mapped again and again, using such widely-differing techniques as that employed by Stamp in the Land Utilization Survey of Britain, and the fractional notation system of the Tennessee Valley Authority (drastically revised to meet southern California conditions). For the purpose of impending study, the student is then encouraged to devise a mapping technique of his own and to try it out upon the practice areas.

During the weeks that follow, each member of the party, working as an individual on foot, maps in detail all aspects of the geographic landscape within the boundaries of two transects across the area. The mapping is done on acetate overlays on a group of aerial photographs. Each evening the day's field work is transferred to a topographic sheet of smaller scale, thereby forcing the student to make certain generalizations at the same time that he is preparing an office copy as a safety precaution against loss.

When this field mapping of transects has been completed, the student generalizes the results into a series of sub-regions and landscape types. These in turn are plotted on a map of still smaller scale, thereby inducing even greater generalization. Traveling by automobile, the group spends several days traversing nearly every road in the area and extrapolating the boundaries of their sub-regions until the entire area has been classified. All of this culminates in the writing of a final report in outline form and theoret-

ically intended as a monograph to be published as a part of a geographical series by a university press. It attempts to describe all aspects of the regional geography of the area.

The final four days of the course are spent in a rapid reconnaissance of the multi-use of a high mountain area (6,000 to 8,000 feet above sea level), wherein recreation is in sharp competition with forestry, urban and agricultural water supply, and grazing for the control of the area. An outline report summarizing these competing uses against the geographic background of the area is based only on spot interviews, rapid traveling, and observation. This is designed to train the geographer to gain as much as possible from those sometimes all too brief visits which he is able to make to new and unfamiliar areas.

It is the writer's belief that the geographer working in an area should become as much as possible a part of it in order to view the economy and the society from the inside, rather than as a detached, impersonal observer. For this reason, the field camp has always been housed in conjunction with one of the representative enterprises of the area under study. For the first week, the group lives at a typical dude ranch, representing the resort phase of the desert economy. During the long stay in the coastal basin, the party is housed on a large lemon-orange-avocado-lima bean ranch in the heart of agricultural territory and, thereby, soon comes to feel very much a part of the local picture. The final week, when recreational uses are the core of the study, the party lives in a Forest Service campground, cooking out of doors, and sleeping on the ground. Thus, in every way possible, the group tries to capture the spirit of the area under surveillance.

Throughout the program, the emphasis is upon the development of the three basic skills of the field man: the abilities to observe, to record, and to analyze. The southern California area affords great variety in both natural and cultural landscapes, but it is used principally as an outdoor laboratory in which these abilities and their associated field techniques can be developed.

THE SALT AND SODIUM AFFECTED SOILS OF THE EASTERN SAN JOAQUIN VALLEY*

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Of California's more than 10 million acres of cultivated land, over 7 million acres, or about 70 per cent, are irrigated. Contingent upon the ratio of costs of bringing uncultivated land into irrigated production to prices and demand for agricultural crops, irrigable land may ultimately be expanded to 19 million acres, 16 million acres in any one crop season.[1] Compared to dry-farmed land, irrigated crop land is by far the more productive, and the Central Valley is particularly important with a net ultimate irrigable area of about 10 million acres. The San Joaquin Valley's eight counties will account for about 6 million acres (now 3,700,000) of this total.[2]

This study is concerned with some 900,000 acres of salt and sodium affected soils of the eastern San Joaquin Valley between the Tehachapi Mountains and the delta of the San Joaquin River. Some 200,000 acres of these soils are under cultivation, leaving approximately 700,000 acres available for reclamation. This constitutes about 29 per cent of the presently uncultivated but potentially irrigable land of the San Joaquin Valley.[3]

Classification

Pedologists often classify soils of the San Joaquin Valley, at least in part, on the basis of physiographic position.[4] Fig. 1 is a schematic approach to the classification of soils, partially by physiographic position; it presupposes the following conditions: first, a south-north drainage way of periodic inundation known as a trough or basin from the vicinity of Buena Vista Lake to the

* Presented at the 54th Annual Meeting of the Association of American Geographers, Santa Monica, August, 1958.

[1] "The California Water Plan," *Bulletin No. 3*, Department of Water Resources, State of California, Sacramento, May 1957, pp. 13-14.

[2] "Water Utilization and Requirements of California," *Bulletin No. 2*, State Water Resources Board, State of California, Sacramento, June 1955, p. 163.

[3] Acreage estimates made from various soil survey maps were reconciled with estimates made especially for the writer by the Agricultural Extention Service of each of the eight San Joaquin Valley counties. In a letter dated December 31, 1957, the Principal Soil Correlator, Western States, said that an accurate tabulation of different kinds of soil will be available about 1960.

[4] Rodney J. Arkley, *Soils of Eastern Merced County*, Department of Soils and Plant Nutrition, College of Agriculture, University of California, Berkeley, 1954, p. 9; F. F. Harradine, L. H. Smith, *et al.*, *Soil Survey of the Coalinga Area*, California, United States Department of Agriculture, Washington, D. C., Series 1944, No. 1 (issued 1952), pp. 15-21; R. Earl Storie and Frank Harradine, "Soils of California," *Soil Science*, 85:210, 1958; R. Earl Storie and Walter W. Weir, "Generalized Soil Map of California," *Manual 6*, College of Agriculture, University of California, Berkeley, 1951; Map, Walter W. Weir, *Soils of Madera County, California*, Department of Soils and Plant Nutrition, College of Agriculture, University of California, Berkeley, 1956, p. 13.

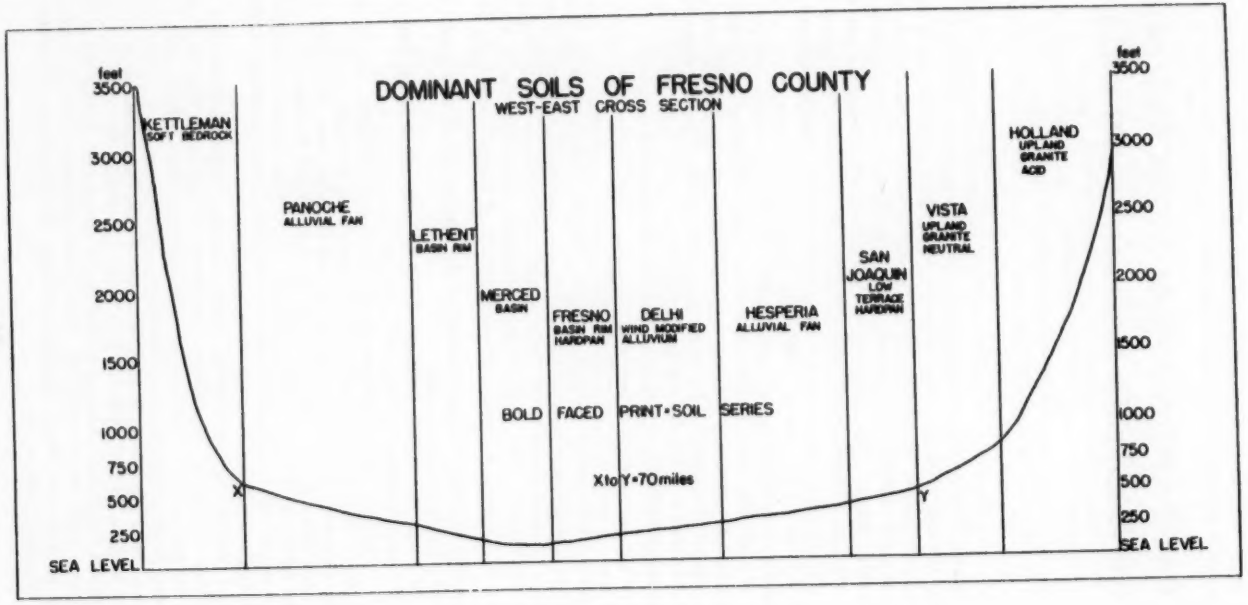
DOMINANT SOILS OF FRESNO COUNTY
WEST-EAST CROSS SECTION
feet
3500
3000
2500
2000
1500
1000
750
500
250
SEA LEVEL
KETTLEMAN
SOFT BEDROCK
PANOCHE
ALLUVIAL FAN
LETHENT
BASIN RIM
MERCED
BASIN
FRESNO
BASIN RIM
HARDPAN
DELHI
WIND MODIFIED
ALLUVIUM
HESPERIA
ALLUVIAL FAN
SAN
JOAQUIN
LOW
TERRACE
HARDPAN
VISTA
UPLAND
GRANITE
NEUTRAL
HOLLAND
UPLAND
GRANITE
ACID
BOLD FACED PRINT • SOIL SERIES
X to Y = 70 miles
X
Y
feet
3500
3000
2500
2000
1500
1000
750
500
250
SEA LEVEL

Fig. 1

San Joaquin delta (see Fig. 2); second, a relatively flat area a few feet higher (basin rim), parallel to and on both sides of the basin, subject to a high water table caused by the lateral migration of groundwater from the basin, which was a major factor in producing salt and sodium soils;[5] and third, alluvial fans, created by streams flowing from the mountains to the valley trough, sloping gently upward from the basin rim position to older alluvial deposits, terraces, and/or the foothills. The alluvial fans frequently have undulating, wind modified soil areas. Terraces adjacent to the foothills of the Sierra Nevada often have soils with red iron hardpan (silica-iron cemented hardpan). While historically the trough of the San Joaquin Valley was a drainage way as described, it appears in Fig. 2 as a ribbon of imperfectly drained soils; because of modern flood control works, there is now little through northward drainage south of the big bend of the San Joaquin River.

The stated conditions do exist or have existed in the past over sufficient area of the valley to give credence to the generalization of Fig. 1, but where drainage patterns are complex, as in the delta of the San Joaquin River and between the Chowchilla and Merced Rivers, the generalization is obliterated. In the delta area organic soils have developed, and, btwen the Chowchilla and Merced Rivers, salt and sodium have penetrated soils typical of alluvial fan positions. Also, some basin position soils have been penetrated by salt and sodium. Furthermore, improper use of irrigation water has created salt and sodium soils in such areas as the peninsular intrusion of these soils south of Fresno (Fig. 2) and in the area north of Visalia[6]—both alluvial fan positions.

The above conditions suggest that a modification of the generalized physiographic position concept used by pedologists of California may be useful for geographers even though there is considerable correspondence between physiographic position and profile development. Storie, in charge of Soil Survey, College of Agriculture, University of California, and Weir, his close associate until recent retirement, are recognized authorities on California soils. For use in this paper, their generalized classification,[7] insofar as it applies to the San Joaquin Valley, has been modified in accordance with the following tabulation (Fig. 2).

STORY AND WEIR'S SYSTEM	MODIFICATION
Upland	Upland
Terrace	Valley Land
Valley Land	Terrace
Deep alluvial fan and flood plain	Deep alluvial fan
Sandy, wind modified	Wind modified
Valley Basin Land	Salt and sodium
Saline and alkali	Imperfectly drained
Imperfectly drained	Organic
Organic	
Unmapped desert	Unmapped desert

[5] Salt refers to soluble salts; sodium refers to exchangeable and/or adsorbed sodium.

[6] In a letter dated January 9, 1958, the Farm Adviser, Tulare County, indicated that the salt and sodium soil area north of Visalia was created by diversions of water from the Kings River for use in the Alta Irrigation District.

[7] Storie and Weir, *loc. cit.* The mapped soil areas in Fig. 2 were taken from Storie and Weir's work, but the legend has been modified.

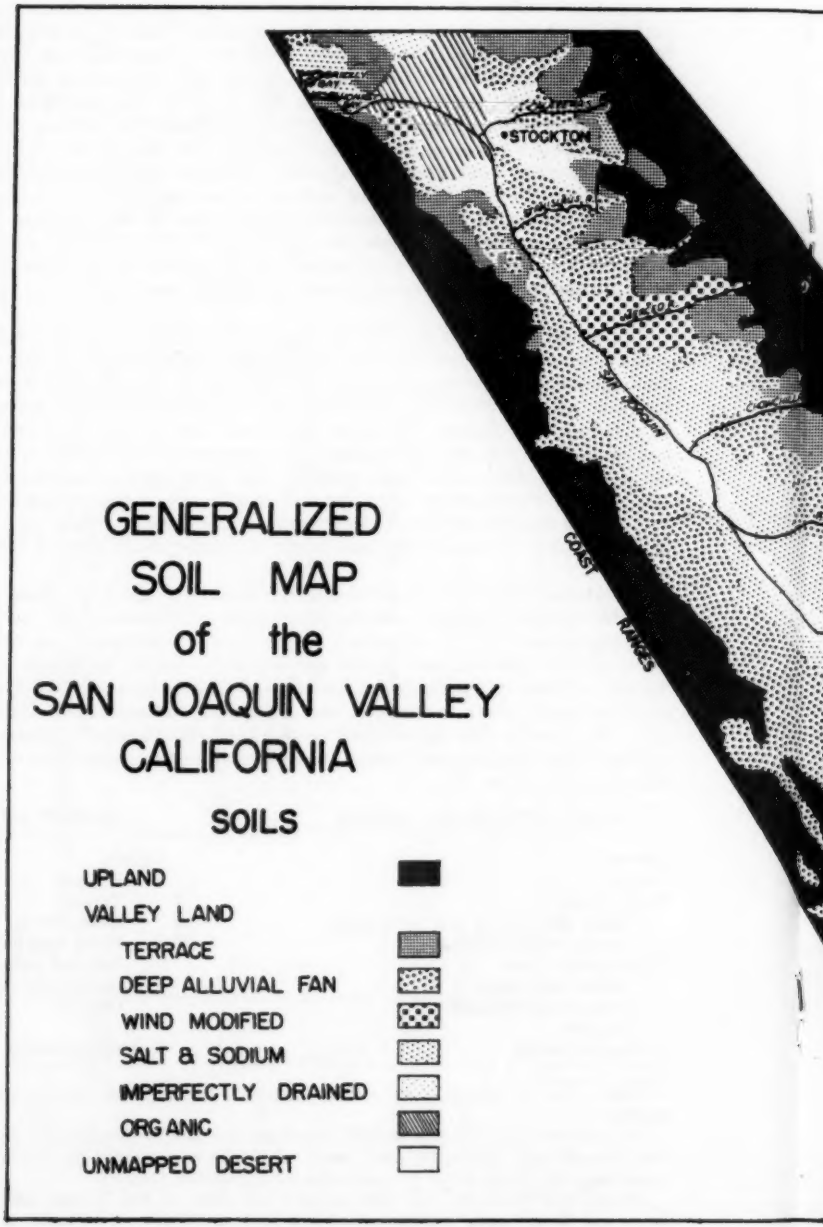
STOCKTON
COAST RANGES
GENERALIZED
SOIL MAP
of the
SAN JOAQUIN VALLEY
CALIFORNIA
SOILS
UPLAND
VALLEY LAND
TERRACE
DEEP ALLUVIAL FAN
WIND MODIFIED
SALT & SODIUM
IMPERFECTLY DRAINED
ORGANIC
UNMAPPED DESERT

Fig. 2

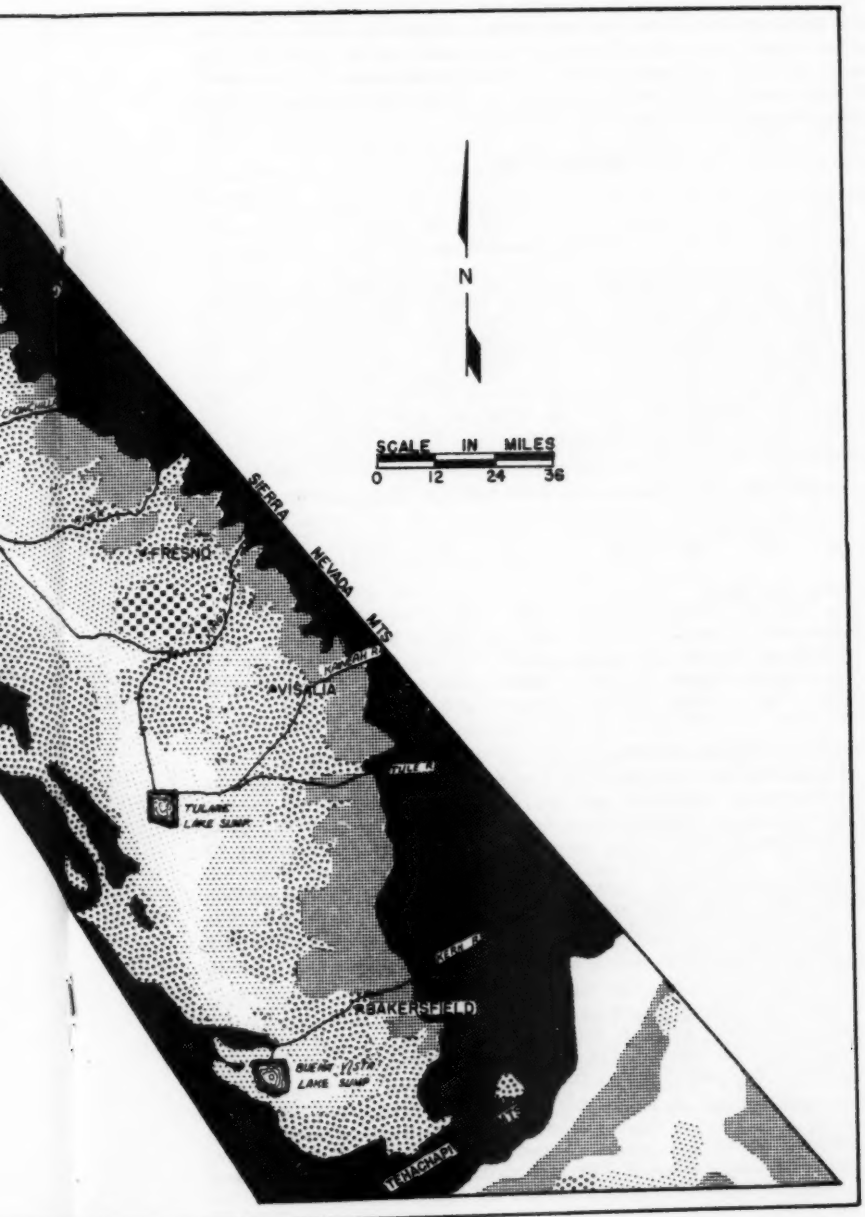
N
SCALE IN MILES
0 12 24 36
SIERRA NEVADA MTS
FRESNO
VISALIA
TULARE LAKE SUMP
BAKERSFIELD
BUENA VISTA LAKE SUMP
TEHACHAPI

Fig. 2

This modified classification includes the terrace soils within the valley, which is physiographically logical; it does not imply that saline and alkali (salt and sodium) soils occur only in valley basin land, and it does not imply that wind modified soils occur only in alluvial fan positions. The term "alkali" was eliminated because usage has made the term confusing, especially when reference is made to "black alkali." [8]

Description

These salt and sodium affected soils are referred to as saline and alkali,[9] and as saline-alkali and nonsaline-alkali.[10] Within the proper definitions used by the respective authorities, most people would consider the terms correctly applied; however, the confusing terminology is one reason for the adoption of the terms "salt" and "sodium." Derived mainly from granitic alluvium washed down from the Sierra Nevada, the soils vary from heavy texture in basin positions to light texture in alluvial fan positions. The salt and sodium conditions are due to the previously mentioned lateral migration of groundwater from the basin area, groundwater from a combination of over-irrigation and inadequate drainage, and ponding. Some saline-alkali soils have been changed to nonsaline-alkali by irrigation practices. The following table shows representative cations and anions to be found in the soils under consideration.

CATIONS AND ANIONS IN SATURATION EXTRACT[11]

M.E. liter

Depth Inches	*pH*	*Ca*	*Mg*	*Na*	*K*	CO_3	HCO_3	*Cl*	SO_4
El Peco fine sandy loam									
0-4	8.8	1.28	0.34	24.6	1.05	0	18.6	6.6	2.1
4-13	10.0	0.72	0.18	59.8	0.72	2.8	15.7	13.7	29.2
Traver fine sandy loam, strongly saline-alkali									
0-3	9.8	0.94	0.04	478.0	8.36	16.9	21.1	408.0	41.3
3-17	10.0	0.40	0.24	347.0	4.0	28.0	19.7	255.0	48.9

It is generally accepted that sodium chloride and sodium sulfate are more abundant than other ion associations, although sodium carbonate and sodium bicarbonate do occur. Adsorbed sodium is a major problem and the probability of this condition is obvious from the above tabulation in which 50 to 90 per cent exchangeable sodium exists.[12] The high pH of these soils is

[8] The United States Salinity Laboratory, Riverside, California, recommends discarding the term "black alkali" and using in its place "sodic" or "sodium" soil. Letter from the Assistant Director, United States Salinity Laboratory, Riverside, California, January 15, 1958.

[9] Storie and Weir, *loc. cit.*

[10] United States Salinity Laboratory Staff, "Diagnosis and Improvement of Saline and Alkali Soils," *Agricultural Handbook No. 60* (Washington, D.C., United States Department of Agriculture, February 1954), pp. 4-6.

[11] Data supplied by Principal Soil Correlator, Western States, February 11, 1958. The Traver and El Peco series are associated with the Fresno series used in Fig. 1.

[12] Exchangeable sodium percentage $= \frac{\text{Exchangeable sodium (meq./100 gm soil)}}{\text{Cation exchange capacity (meq. 100 gm soil)}} \times 100$. See United States Salinity Laboratory Staff, *op. cit.* p. 155.

mainly a result of the high percentage of exchangeable sodium. Attempts are still made to associate an abundance of sodium carbonate with a high pH. A certain but not necessarily a considerable amount may be present. Where sodium carbonate is present, it is the result of hydrolysis of sodium clay.[13] The terms Solonchak and Solonetz have been applied to these soils, but, since the terms depend upon the entire soil morphology, such application is probably unwarranted. At least one authority states that "both kinds of soil may be saline or saline-alkali, and the Solonetz may be nonsaline-alkali as well."[14]

Reclamation

Since reclamation of these salt and sodium affected soils involves removal of soluble salts, where present, and cation exchange (calcium for adsorbed sodium), the following procedures should be followed: (1) level the land; (2) establish drainage if not present; (3) add gypsum, the amount to be determined by the exchangeable sodium percentage; (4) irrigate; and (5) add organic matter in the form of manure or crops, preferably the latter. Leveling, drainage, and irrigation (by complete flooding) are essential to make the leaching process effective. Gypsum is added so that with X representing the soil exchange complex the reaction, $2NaX + CaSO_4 \gtrless CaX_2 + NaSO_4$, will take place, and the resultant soluble sodium salts will be leached out. The sulfur (in the gypsum) and organic matter aid in bringing the calcium ions into solution.[15] Also, the organic matter helps improve soil structure and thus hastens the leaching process.

Crop yields the first year of cultivation vary from poor to almost nonexistent, and the second year's crop may be poor to fair, and sometimes better, depending upon the particular soil conditions and the efficiency of the described reclamation processes. Initial crops should be alfalfa, barley, irrigated pasture, sudan grass, or rice. While some authorities do not recommend row crops the first two years because of "wick action," cotton is frequently used during the reclamation process in the San Joaquin Valley.

Costs involved in reclamation probably average between $225 and $300 per acre. These costs include $90 to $100 per acre for leveling, $35 to $50 per acre for irrigation, $40 to $60 per acre for gypsum (at an average price of $5 per ton), and $60 to $90 per acre for gypsum (at an average price of $5 per ton), and $60 to $90 per acre for crop loss the first two years while the major portion of the reclamation work is in progress. These cost data are rough estimates which do not include drainage costs, because little reclamation is carried on in the valley where extensive drainage must be established. Because of improper application of gypsum, inefficient irrigation, and generally poor management practices, a farmer could materially increase the

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[13] Assistant Director, United States Salinity Laboratory, *loc. cit.*

[14] Letter from an associate specialist, Department of Soils and Plant Nutrition, College of Agriculture, University of California, Berkeley. The writer of this paper finds it difficult to imagine a situation that would produce a saline Solonetz soil.

[15] United States Salinity Laboratory Staff, *op. cit.* pp. 34-54. There seems to be some doubt as to the actual effectiveness of organic matter and the produced CO_2 as a factor in the replacement of adsorbed sodium. See, J. O. Goertzen and C. A. Bower, "Carbon Dioxide from Plant Roots as a Factor in Replacement of Adsorbed Sodium in Calcareous Soils," *Soil Science Society of America Proceedings*, 22:36-37, 1958.

stated costs. The methods of reclamation as described, however, are the most efficient as well as the cheapest.

Admittedly, reclamation costs are high as are also the costs of raw land. An average price per acre for raw land is not available, but prices of $100 to $200 are quoted; thus, purchase prices plus reclamation costs average $325 to $500 per acre. West and south of Fresno some reclaimed land sold for $450 and $500 per acre in the spring of 1958.

Conclusion

With better distribution of California's water resources, there is adequate water within the state for the development of another 12 million acres of irrigable crop land. The salt and sodium affected soils of the eastern San Joaquin Valley are situated near main arteries of transport, and accessible to major urban markets. As the population of the state increases, perhaps ultimately to 40 million people; as urban sprawl and new transport routes continue to consume existing agricultural land, and, as the state and national markets increase, these salt and sodium soils undoubtedly will be brought under cultivation.

JAPANESE SETTLEMENT IN THE LOS ANGELES AREA

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The Japanese in the United States, a numerically small but economically and socially significant ethnic minority, have had a somewhat unique experience with migration and settlement—unique at least in a country with long traditions of liberty and democracy. Under wartime conditions, between 1942 and 1945, some 120,000 persons of Japanese ancestry, including 88 per cent of the United States total, were evacuated under military orders from the Pacific littoral. In the first phase of this involuntary migration, which was known officially as "relocation," they were domiciled in camps and barracks predominantly east of the Sierra-Cascade divide, and for a greater or lesser period they lived the life of displaced persons.

During the second phase known as "resettlement," they were permitted to leave the camps and establish permanent residence further east, predominantly in the Midwest where they found in the main ready acceptance and were able to carry on their own professions or find other suitable work. By early 1945 with the subsidence of national panic and the success of the two-front war assured, the prohibited Pacific Coast was opened, and there was again freedom of choice—to remain in the Midwest where many had attained success, or return "home" to the Pacific Coast to "resettle" in their old familiar pre-war surroundings (Figs. 1, 2, and 3.)

Pre-War Settlement in Los Angeles

It is not definitely known when the first Japanese came to Los Angeles County, but the United States Immigration Commission reported that a group of them started a restaurant in Los Angeles about 1885. Thirty-six Japanese immigrants were listed in the 1890 census for Los Angeles County.[1] With no steamship connection between Los Angeles and Japan, early migrants usually entered by way of San Francisco or Seattle.

Many of the earliest settlers were laborers on the Santa Fe or the Southern Pacific, while farm employment and small business enterprises absorbed others. The many attractive features of southern California included the subtropical climate as well as an array of job possibilities in an uncrowded region. A sudden influx of Japanese into Los Angeles County followed the San Francisco earthquake and fire in 1906. At about the same time poor housing and living conditions proffered to farm laborers throughout the Central Valley were turning many toward the cities and especially in the direction of the rapidly growing Los Angeles conurbation which offered the widest range of opportunities.

[1] Report of the Immigration Commission, *Immigrants in Industries*, Part 25, Vol. 23, Government Printing Office, Washington, D.C., 1911.

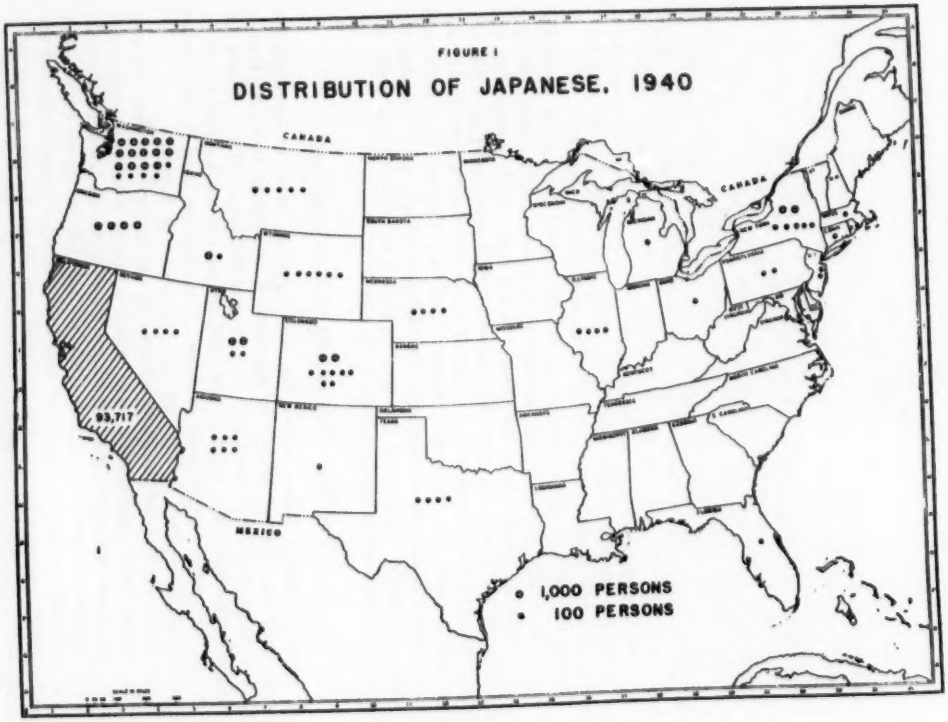
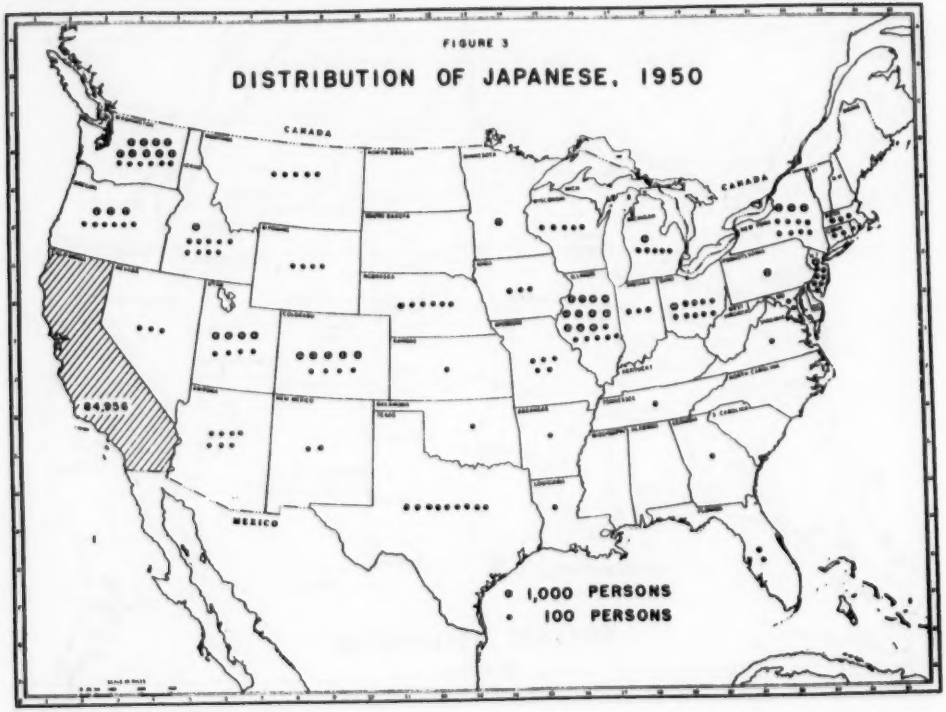


FIGURE I
DISTRIBUTION OF JAPANESE, 1940
CANADA
CANADA
93,717
MEXICO
1,000 PERSONS
100 PERSONS


FIGURE 2
RELOCATION CENTERS
CANADA
CANADA
HEART MOUNTAIN
TULE LAKE
MINIDOKA
CENTRAL UTAH
GRANADA
MANZANAR
COLORADO RIVER
GILA RIVER
MEXICO
ROHWER
JEROME

FIGURE 3

DISTRIBUTION OF JAPANESE, 1950



Another powerful motivation was the California Alien Land Laws, first enacted in 1913 and amended in 1920 and 1923; these deprived aliens of the right to own or lease agricultural land and thus accelerated movement to the cities. Between 1920 and 1940 there was a marked decline in the number of Japanese in California farming areas; Japanese-operated farms decreased from 361,276 acres in 1920 to 191,427 acres in 1930.[2] (Fig. 4.)

In the Los Angeles area Japanese population expanded rapidly. Whereas in 1900 they were concentrated in San Francisco, Sacramento, Alameda, and a number of other central California counties, by 1910 Los Angeles County ranked first in number of Japan-born immigrants (Table 1).

Table I

JAPANESE POPULATION TRENDS IN LOS ANGELES COUNTY AND CITY

	1950	*1940*	*1930*	*1920*	*1910*	*1900*	*1890*
United States	141,768	126,947	138,834	111,010	72,157	24,326	2,039
California	84,956	93,717	97,456	71,952	41,356	10,151	1,147
Los Angeles Co.	36,761	36,866	35,390	19,911	8,461	204	36
Los Angeles City	25,502	23,321	21,081	11,618	4,238	150	26
United States	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Los Angeles Co.	25.9	29.1	25.5	17.9	11.7	.8	1.7
Los Angeles City	18.0	18.4	15.1	10.5	5.9	.6	1.3
California	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Los Angeles Co.	43.3	39.3	36.2	27.7	20.5	2.0	3.1
Los Angeles City	30.0	24.9	21.6	16.1	10.2	1.5	2.3

Compiled from reports of the United States Bureau of Census,* Eleventh, Twelth, Thirteenth, Fourteenth, Fifteenth, Sixteenth, *and* Seventeenth, Census of Population *(Washington, D.C.: Government Printing Office).

By 1940 the distribution of Japanese in the United States was essentially stabilized with 74 per cent of them in California. Areas of greatest concentration were the Los Angeles Basin, followed by the Central Valley with Sacramento and Fresno as major centers. The San Francisco Bay Region had another concentration, and smaller numbers were scattered throughout the state except in the most northern counties.

Relocation

The sudden attack on Pearl Harbor, December 7, 1941, followed by declaration of war with Imperial Japan focussed American attention on the concentrations of Japanese along the Pacific Coast and particularly in Southern California. In the spring of 1942 emergency orders approved by the President and issued by the Western Defense Command called for the immediate removal of all persons of Japanese ancestry on the West Coast. Announced on March 24, it was executed rapidly and completed by August 8.[3] Because of the drastic swiftness of the evacuation, any satisfactory disposal of Japanese assets was generally impossible, and a minimum of organized protection was provided by the government. As a result property

[2] Polio, Adon, *Japanese Farm Holdings on the Pacific Coast,* U.S.D.A., Bureau of Agricultural Economics, Berkeley, 1944, Mimeographed.

[3] U.S. Army, Western Defense Command and Fourth Army, *Final Report: Japanese Evacuation From the West Coast, 1942,* Government Printing Office, Washington, D.C., 1943.

FIGURE 4

● California counties with 50 per cent or more than 50 per cent decrease in Japanese persons, 1910-1930

losses were enormous. The removal of the Japanese from their accustomed communities created a vacuum, filled almost at once by other minority groups which flocked in to take over Japanese farms, homes, and businesses.

The evacuees were transported to a number of government sponsored relocation centers, set up in relatively undeveloped lands of the intermontane region or in the American midlands east of the Rockies. Although supplied in some cases with disused barracks, none of the camp areas had any economic or geographic significance. Selected entirely on the basis of military expediency, the relocation centers were in undeveloped dryland or unpopulated swampland regions which offered little except their admitted primary

purpose—segregation of a suspect alien group at a safe distance from most urban centers and especially from the Pacific Coast. (Fig. 2.) The surrounding lands were economically marginal and almost devoid of any incentive for permanent settlement. Like the army barracks which were their prototypes, the camps were soon abandoned, salvaged, or converted to other uses after the departure of the last occupant in 1945.

For the majority of the evacuees, their forced resettlement of 1942-1945 was a time of trial and considerable humiliation, albeit borne with patience and fortitude by the Issei, and with some wry humor by the more Americanized Nisei.[4] No anti-American act was ever recorded as committed by a Japanese in any of the camp centers. Everybody worked, and many of the centers were virtually self-sustaining. Schools were provided for the children and vocational classes were opened. Many Nisei of college age were released almost immediately to continue their studies in midwest and eastern institutions of learning.

Resettlement—East and West

Although the Pacific Coast was barred, Japanese in the relocation centers willing to establish themselves east of the Rockies were permitted to locate anywhere in the relatively tolerant Midwest. Many took advantage of this opportunity to secure work and practice their professions, finding conditions much to their liking in states such as Colorado, Wisconsin, and Illinois. By 1950 their distribution was much wider than in 1940, particularly in the Corn Belt states. Chicago, with 10,800 of them, became the second ranking Japanese residence city in America.

The most impressive movement, however, was the speedy resettlement of 85,000 Japanese (60 per cent of the national total) in California. With the War in the Pacific moving toward its successful conclusion, the exclusion order was revoked in January, 1945, the War Relocation Authority announcing that the centers would be closed by January 2, 1946. All remaining evacuees living in the camps were given the option of returning to the West Coast or resettling in other parts of the country. Still somewhat hesitant concerning the attitude of California toward their race, a number of Los Angeles Japanese took short term camp leaves and scouted the West Coast situation. Their reports were so encouraging that the westward move began immediately, and, by June, 1945, returnees to the West Coast equalled those choosing other parts of the United States; by October, 90 per cent of those leaving the centers were moving west.

During 1945, some 15,115 left the centers for Los Angeles County.[5] The return was complicated by the difficulty of getting access to their own property. The wartime housing shortage was acute and substitute dwellings were difficult to obtain; hostels and trailer camps were used extensively. This makeshift situation steadily improved, and by the end of 1946 an estimated 85-90 per cent of the displaced persons had succeeded in finding permanent housing, with approximately one-quarter of the returnees able to repossess their own houses.[6] Since the bulk of this property represented

[4] *Issei*, a first generation immigrant born in Japan; *Nisei*, an American-born Japanese; *Sansei*, an American born of Nisei parents; *Kibei*, American born but partially educated in Japan.

[5] War Relocation Authority, *Returns to West Coast*, Cumulative Summary, Monthly Reports, 1945, Mimeographed.

[6] War Agency Liquidation Unit, *People in Motion*, Government Printing Office, Washington, D.C., 1947.

pre-war ownership, the normal result was a trend toward the re-establishment of the pre-war settlement pattern. Many others who had previously settled elsewhere in America changed their minds and returned to California. By 1950 the Japanese in Los Angeles County had increased to 36,761—99.7 per cent of the 1940 population.

Population-wise the disrupting influence of the Japanese relocation years, 1942-1945, had less permanent effect on Los Angeles County than on any other part of the United States. Following the war, Los Angeles and its many satellite cities attracted Japanese from all the relocation centers and from other areas of resettlement in the Midwest and the East; there was no indication of an out-migration. While there was no appreciable numerical change during the decade (Table 1), far-reaching economic and social changes occurred in their relationship with local Los Angeles and also within the structure of the Japanese community. The county has a representative cross section of all age groups and all types, Issei, Nisei, Sansei, and Kibei[7] and, therefore, provides an opportunity to observe the changing position and role of each generation. Many non-indigenous aspects of the pre-war occupance have been modified under the impact of the ascending dominance of Nisei over Issei.

Postwar Rural Settlement and Economy

A predilection for agriculture has been characteristic of the California Japanese, the Issei in particular clinging to familiar farm occupations. The decline in farm population from 43.2 per cent of employed Japanese in 1940 to 32.9 per cent in 1950[8] may be ascribed mainly to economic losses suffered as a direct result of evacuation. Loss of property was high among this occupational group since the orderly liquidation of farming operations in 1942 had been abnormally difficult. This was in part the result of government pressure for continuance of production up to the date of departure in order to avert any possible food shortage. The prevalence of tenant-operated farms among the Japanese in the county (89.6 per cent in 1940) is in contrast to post-war holdings which are larger and more commonly owner-operated. Farm ownership among the Japanese increased from 26 per cent in 1940 to 57 per cent in 1950, together with a higher acreage average per farm in the later decade. The absence of small scale operators in the post-war era and an increase in the percentages of farmers and managers correspond to the decrease in farm laborers and unpaid family workers. The marked reduction in numbers and percentages of unpaid family workers indicates a significant change in farm organization and especially the lessened significance of the family enterprise system of pre-war Japanese-operated farms. One of the most outstanding post-war developments in Japanese agriculture has been the gradual adoption of American farming methods, concepts, and values.

Post-war farming districts in Los Angeles County tend to resemble the pre-war areas of concentration but with major modifications. The growing city has absorbed most of the former Japanese-operated farms, pushing post-war agriculture into some of the most peripheral areas of the county; city

[7] U.S. Bureau of the Census, *Nonwhite Population by Race, Special Reports, 1950*, Government Printing Office, Washington, D.C., 1953.

[8] Unpublished census data as reported by the Wartime Civil Control Administration, Western Defense Command, *Bulletin* 9, May 4, 1942.

farms are limited to small and fragmented holdings. The pressure of urban developments constantly foreshadows the displacement of present Japanese farms, and many operators are being forced to search for suitable land in less populous areas. It is not unusual for a farmer to maintain a garden plot and a residence in a highly urbanized area but to have the greater part of his acreage at a distance or even in neighboring counties. Less displacement of Japanese occurs in the more specialized occupations of horticulture and floriculture where a considerable degree of skill and experience are needed and acreage requirements are smaller.

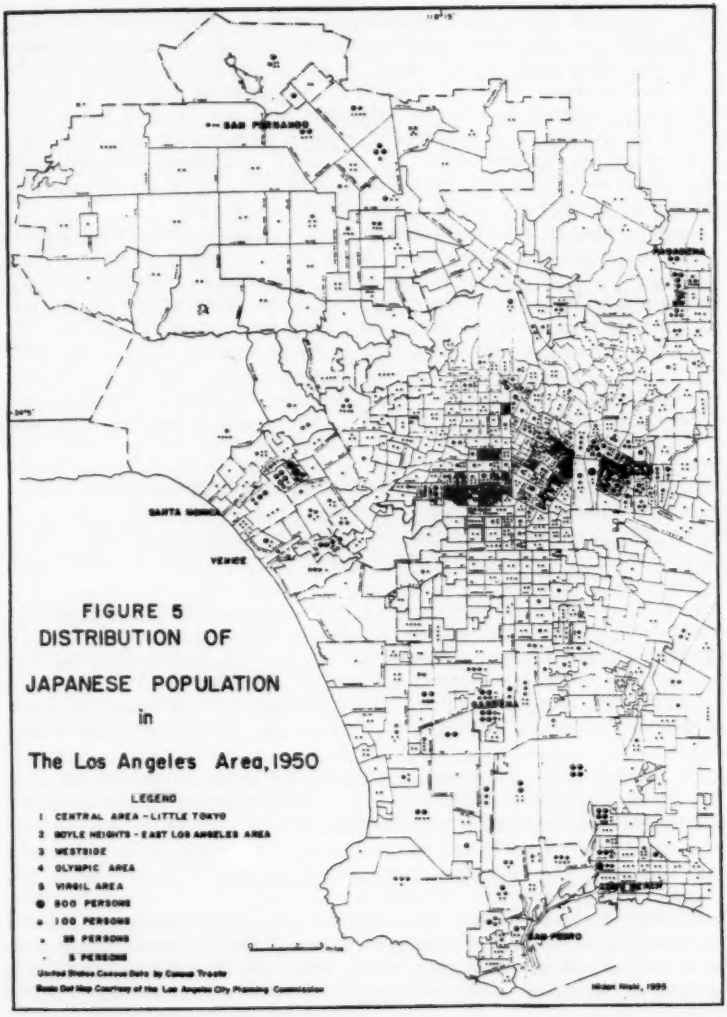
There is today an important concentration of Japanese farms and nurseries in the adjoining districts of Venice, Santa Monica, Culver City, and West Los Angeles. Truck farmers in this section specialize primarily in growing celery and a wide variety of secondary truck crops. Nothing like the pre-war concentration of Japanese-operated truck farms has reappeared in the southern part of the county. However, close to 50 per cent of all Japanese nurseries in the county are found in the southern areas including Gardena, Hawthorne, Torrance, Redondo Beach, and Harbor Region. Owning close to one million square feet of glasshousing, one nursery in the area is reputed to be the largest grower of cut flowers west of Chicago. Between thirty and forty Japanese families operated farms in the Palos Verdes Hills during the pre-war period; only six remain, all of them on leased land with limited tenure. Rapidly developing into an exclusive residential district, the Palos Verdes Hills may be nearing the end of its agricultural importance. Only a small cluster of flower and vegetable growers remains in the San Fernando Valley.

Prior to evacuation the pressure of rapid urban expansion was already forcing some nurseries toward the suburban fringe, and the removal of the Japanese in 1942 accelerated the movement. In 1940, 89 Japanese nurseries were located within Los Angeles City but in 1952 only 14 remained. On the other hand, nurseries tend to thrive in suburban areas, where active home building is likely to be found and where there is a farm market for bedding plants.

The success of the Japanese agricultural population in readjusting their activities to changing conditions in Los Angeles is most strikingly apparent in their higher earning power and improved standard of living.

Postwar Urban Occupance

Although the trend toward urbanization, especially among the second and subsequent generations, had commenced before 1940, the returning Japanese tended to concentrate even more heavily within the Los Angeles city limits and in the numerous satellite cities of the county. Los Angeles City experienced a 9.4 per cent increase in Japanese population from 1940 to 1950 and other incorporated cities in the county 5.1 per cent. Although 24 of the 45 incorporated cities in the county experienced a decline in the number of Japanese from 1940 to 1950, the 17 cities, which showed a gain, offset the total loss. Percentage-wise, a substantial increase of 142 per cent in Long Beach, 82.6 per cent in Pasadena and 46.6 per cent in Gardena had taken place. Among the cities whose Japanese population declined in the postwar period, Torrance, Glendale, Burbank, Arcadia, Inglewood, South Pasadena, El Monte, and Monterey Park had major losses. Practically all had important concentrations of the prewar Japanese farm population.



Settlement Pattern

The tendency of many ethnic minorities to congregate and form cultural islands is a well known phenomenon, particularly in urban areas. With the return of the Japanese to Los Angeles, the familiar cluster type communities of the prewar period were soon re-established, the areas of highest concentration being localized within the heart of the city. (Fig. 5.) These nucleated settlements were logical outgrowths of various socio-economic forces and

pressures. Inimitable "Little Tokyo," centering around the intersection of East First Street and San Pedro Street, is still the largest concentration of Japanese businesses and professional services in southern California. This center provides a diversity of social, cultural, and religious activities long familiar to the Issei and closely fitting their needs and interests.

In re-establishing the general outlines of the pre-war settlement pattern, significant modifications have taken place. The main communities are less compact and their Japanese population is less concentrated. Westside community is now the best Japanese residential area, and its expansion is further evidence of an improved socio-economic status. Greater dispersal of Japanese in better residential districts is due to the removal of restrictive zoning regulations and the greater acceptance of Japanese in white residential districts. The younger generations are no longer dependent on ethno-centered communities or affected by the social control once exerted by these centers.

Economic Adjustments

The economic structure built by immigrant Japanese began to crumble under the impact of the evacuation. Little direct continuity of economic activities could be maintained because of the suddenness of evacuation and relocation, and, as a result, the vestiges of former businesses preserved during the interim were of small value. The decline of agriculture in the postwar Japanese economy resulted in a large scale movement of pre-war farm people to the cities. The transition from Issei to Nisei dominance introduced an entirely new set of aspirations and abilities influencing and directing occupational choices. Nisei initiative has been mainly responsible for many new economic developments.

As a result of severe financial losses in 1942, economic recovery in certain occupations was difficult. There has been a decline in number of proprietors or closely held small independent businesses, which were formerly leading occupations. The pre-war leadership of the Japanese in wholesale and retail marketing of truck produce has been lost. A relatively large number of Japanese, however, are now engaged in the marketing of horticultural and floricultural products. The number of gardeners since relocation has about doubled the pre-war total. The relatively high incomes realized by this group keep large numbers in contract gardening, although many originally seem to have entered such work as a temporary expedient. Before the war the main concentration of gardeners was in Sawtelle or West Los Angeles, conveniently located for employment in the exclusive residential districts of Bel-Air, Brentwood, and Beverly Hills. The widespread development of upper-class residential districts in many parts of the Los Angeles area, creating a greater demand for landscapers and gardeners, has dispersed this group of workers.

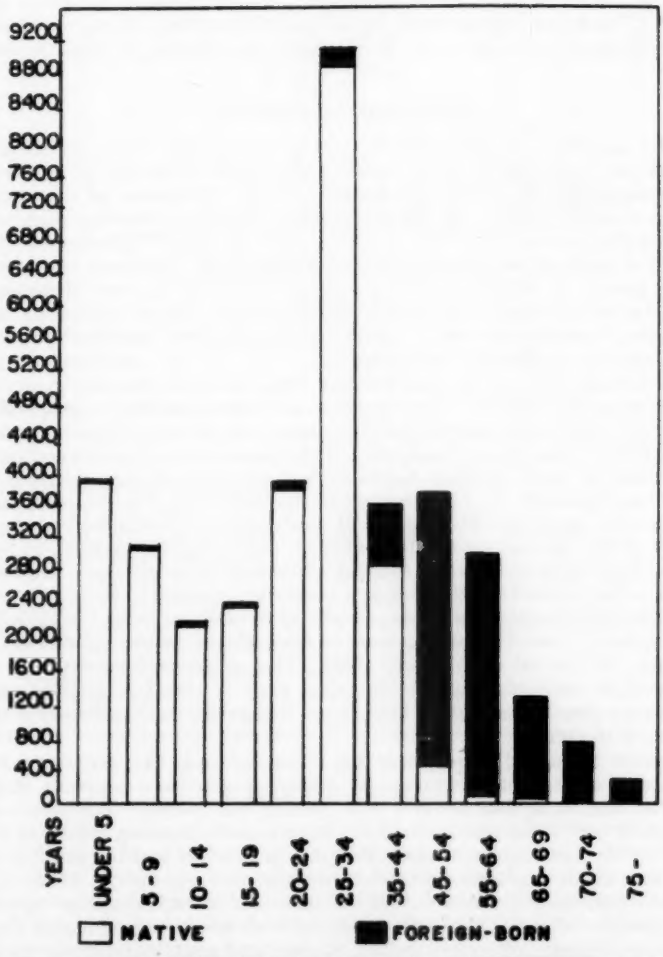
Private household employment has increased and, like gardening, has offered a convenient occupation for returning evacuees, especially single women who have thus secured both housing and income. Japanese were originally part of the semi-skilled labor force in manufacturing industries but, by 1950 in Los Angeles County, this class of workers had increased to 16 per cent of all employed Japanese in contrast to 6 per cent in 1940. The rapidly expanding garment industry in particular has taken a large number of Japanese women. Other light industrial work employing significant numbers are ceramic factories, furniture, rubber, and small metal goods manu-

FIGURE 6

NUMBER OF NATIVE AND FOREIGN-BORN JAPANESE BY AGE

METROPOLITAN LOS ANGELES

1950



facture. The "craftsmen and kindred workers" category more than doubled between 1940 and 1950. Clerical and service work is at the pre-war ratio, but a significant expansion is taking place in business, industry, and the professions. The large corporations now have openings although prior to the war they hired few Japanese. The number of professional and technical workers has almost doubled in the county. Entrance of the large group of Nisei, age 25 to 35, into the labor force undoubtedly contributed to the major increase in number and proportion of professional and technical workers. (Fig. 6.) A significant development has been the increased number of Nisei teachers in public school education, a field which had been almost closed to them before the war. Fewer professional people have chosen to resettle on the West Coast because of a wider range of opportunities for their training and talents in the Midwest and East. Doctors, dentists, optometrists, lawyers, and clergymen in the Los Angeles area concentrate principally in the "Little Tokyo" type communities serving their own ethnic group.

Median income for the Japanese in Los Angeles in 1950 was exceeded by that of three eastern cities, but the Los Angeles and San Francisco-Oakland median income was higher than that of all other major centers of Japanese concentration in the Pacific Coast states.

By disrupting and to some extent destroying the economic and social structure built by the Issei, the net effect of evacuation was to accelerate the trend toward economic assimilation. Except for the evacuation more Nisei would have taken over the businesses established by their Issei parents. Had not the war intervened, the tight cluster of Japanese fishermen forming the Terminal Island community in San Pedro might still be thriving, with Nisei gradually assuming dominance over the fishing industry. Likewise, in other Japanese operated businesses, the transfer from father to son would have tended to retard any major changes.

Returning to an expanding Los Angeles in 1945, Nisei discovered that the economic situation was changing, that racial prejudice in the business world had declined, and that many business and professional positions were now open to them. By 1950 most college-trained Japanese had no great difficulty in finding work along the lines of their training. Nisei with college degrees secured business, engineering, and other professional positions commensurate with their training.

In contrast to the aims and values of the Issei with their preference for closely knit family businesses, most Nisei prefer white-collar work, side by side with other Americans. In the higher brackets there is a growing acceptance of Nisei in positions of trust, on important commissions, and in elective offices. These changes in the occupational pattern reflect the successful acculturation and economic assimilation of the second and succeeding generations of Japanese-Americans. With the great increase of Nisei in the Los Angeles labor force, the occupational pattern now resembles more closely that of the general population.

Social Adjustments

The educational level of the Japanese in California is extraordinary when compared to other minority groups and indicates the high esteem in which they hold education. In 1950 the education of Japanese men exceeded that of all classes of males by 9/10 of a year and that of Japanese women exceeded all classes of females by 2/10 of a year. The median of school years

completed by the white population of California in 1930 was 11.8 or 3/10 of a year below that of the Japanese.

Adherence to purely Japanese cultural institutions is steadily diminishing as proved by the reduction in the number of language schools, Buddhist and related temples, societies devoted to old world arts and crafts, and various Issei social or benevolent organizations. The strong patriarchal family organization of the Issei, with its body of transplanted folkways, is being supplanted by the Nisei family with its American customs.

Ethno-centered communities of the "Little Tokyo" type have not disappeared, but they serve a gradually diminishing function. Concurrent with their decline, social acceptance within the whole community is rising and has been promoted especially by wider residential distribution. Among the particularly encouraging trends are the spatial rearrangement of the Japanese in Los Angeles, the increase in socio-economic advantages, and the slow but steady progress of integration into the American way of life.

OBSERVATIONS FROM ABROAD

In addition to J. Granville Jensen, who spent a sabbatical leave on field work in Mexico, Joseph E. Spencer spent part of his sabbatical leave as Fulbright Lecturer in Geography, University of Malaya, Singapore; he also has a Wenner-Gren Foundation for Anthropological Research Travel Grant. John G. Rice, a graduate student in geography, spent a year in Australia with a Fulbright Scholarship, University of Sydney; J. Ross Mackay continued his Arctic field work under Canadian Government auspices; and Donald W. Meinig was Fulbright Research Scholar in Historical Geography, University of Adelaide.

Preliminary Notes on Shifting Cultivation in Southeastern Asia

Throughout the tropics there remains actively in use an early system of agriculture commonly known as shifting cultivation, to which many other names and descriptive terms also have been applied. Customarily, geographers, and other scholars as well, define shifting cultivation rather simply, think of it rather loosely, and classify it as a single system. It is considered a primitive subsistence cropping system whose chief distinguishing characteristics are defined as involving:

1. Practice chiefly by primitive peoples, in small populations;
2. The use of a few simple tools only;
3. Clearing of fields by cutting, slashing, and felling, and using fire to dispose of the debris when it has dried;
4. Frequent shifting of fields from place to place, with the abandonment of fields once cropped;
5. Mixed planting of many crop plants in the same field;
6. Use of predominantly annual and short-term food crops;
7. Little if any preparation of the soil prior to planting, and little if any weeding, cultivation, or other care;
8. Use of crops primarily for subsistence;
9. Low per-acre and per-man yields, with few surpluses;
10. Destruction of valuable timber and serious soil erosion.

Preliminary field observations in earlier years had suggested that it was no more accurate to describe the shifting cultivation of southeastern Asia in such simple terms, and as a single system, than it is to describe all mid-latitude sedentary agriculture in equally simple terms and as a single system. Therefore, while on sabbatical leave during the academic year 1957-1958, I spent variable periods of time in the Philippines, British Borneo, Thailand, Malaya, Ceylon, and India examining the practice of shifting cultivation by a wide range of peoples in different geographical environments operating

under quite different economic patterns. There follow a few preliminary observations on shifting cultivation as actually practiced in parts of southeastern Asia at present. In time I hope to complete a monograph which will fully review the subject for southeastern Asia.

Shifting cultivation is now used by all kinds of people, of all levels of culture, whenever the circumstances indicate that it is a good system to employ. In many frontier regions it is the system utilized by the permanent settler during the first years of occupation of land destined to become a permanent farm. Such pioneers often follow the lumbermen. Since trucks, bulldozers, and other heavy machinery are normally employed by lumbermen, there are not only roads for access, but there is frequently much destruction of over-age and faulty trees and undergrowth, the equipment has frequently chewed up patches of surface soils, and the task of clearing ground for cropping is significantly lessened.

Burning remains the chief technique employed to dispose of vegetative debris, but not every fire indicates shifting cultivation. Plantation developers similarly employ fire, and much of the destruction of forest cover is a phase of the growth of a permanent agricultural landscape, with or without previous extraction of good timber. Fire often does destroy much young timber, fires do escape control, and no portion of southeastern Asia as yet has developed effective controls over fire. In many regions, however, forest preserves, state forests, and reforestation are multiplying future timber resources in impressive totals.

In regions in which shifting cultivation is a continuing system in current application, the patterns of field-shift are bewilderingly complex, in many cases. Seldom is the shifting a hit-and-miss matter. There are only a few regions in which the shift still is unidirectional in the long term, leaving in its wake a young plant cover which may or may not mature into useful forest. Such peoples as are permanently shifting cultivators rarely destroy much good timber, because their cyclic pattern has been reworking localities in which there has been little virgin timber for generations. These patterns normally constitute long range rotational land-use systems of a high order, and in such areas there frequently is less soil erosion than probably occurs on many farms in the United States. Many peoples still regularly employing shifting cultivation of an established variety have declined in population in the last two or three centuries from causes not related to their agricultural system, and these rarely over-work their land resources.

Every range of cropping variation is to be found employed by the shifting cultivator, and in many areas system variants can be defined as clearly as can the agricultural regions of the United States. The taro-yam region practices its agriculture quite differently from the rice-coconut region. At the other end of the scene is the use of land for single planting of such crops as cotton, bananas, rice, tobacco, or chili peppers, which may be purely a commercial venture planting one kind of crop per field. A per-acre yield markedly higher than that for a permanent field may result, and the dollar return may be higher than sedentary agriculture normally returns. The use of power machinery may even accompany such commercial programs. Even when multiple cropping is employed, possibly running to twenty kinds of crop plants per field per season, the element of commercial sale now is widespread, and the description of shifting cultivation as purely subsistence agriculture applies only to isolated regions and situations. Most peoples whose standard system is rotational shifting cultivation seem to plant trees

of some type, having in mind some kind of long range production cycle. Since these plantings seldom are cultivated in those years of rotational land regeneration, they merge into the "wild vegetation" of the post-cropping successional cycle. Such peoples have not abandoned their land, and "abandoned" is perhaps the most incorrectly used word in the whole descriptive framework.

Shifting cultivation is not an inefficient, remnant system that is dying in the face of cultural advancement, for it remains widely practiced as a productive system. The occidental colonial administrator, the forester, the lumberman, and the pedologist have inveighed against it and, formerly, in many areas did succeed in tying a population down to permanent fields, only to reap declining crop yields as soils wore out and no provisions for soil replenishment or agricultural improvement were made by the colonial powers. Such areas are today the really serious problem areas. There are, obviously, regions in which population totals have grown too large for their support by any kind of agriculture on areas left to them by colonial administrators, who sometimes expropriated rotational reserve lands for occidental plantations, forest preserves, or settlement by other peoples. In such areas rotational cycles for shifting cultivation have become far too short, crop yields have dropped, soil erosion is serious, poverty has increased, and exodus has occurred or is occurring. It is often from such areas that the evils of shifting cultivation are exemplified. These are not, however, natural examples of shifting cultivation, but are the anomalous situations created often by colonial administrations that did not comprehend the nature of a local economy, or preferred to foster some more profitable form of economic exploitation.

In short, almost every element of the geographic textbook characterization of shifting cultivation, at least in southeastern Asia, is in error in some degree. Shifting cultivation is not a single system of agriculture any more than is contemporary American agriculture a single system. There is bewildering complication and variation in the practice of shifting cultivation today, and the variety is growing rather than declining. Textbook illustrations can be found, of course, and every element of the classic description still is operative in some area, among some people, at some time, to some degree. Tropical shifting agriculture, however, in southeastern Asia is not necessarily primitive, remnant, inefficient, destructive, or subsistence agriculture.

—Joseph E. Spencer
University of California, Los Angeles

Creeper Gate: Sheep Station In the Australian Outback

It was February and the late summer fog gave a slight chill to the early morning air as we drove out of Sydney headed for the Blue Mountains, our ultimate destination a sheep station west of the Great Dividing range in New South Wales. The gentle western slope finally merged into a flat plain dotted with groves of kurrajongs, box trees, and mulga where the Bogan and Macquarie Rivers flowed northward to join the sluggish Darling. The late

afternoon sun was low before we reached Creeper Gate, some fifty miles to the west of Nyngan.

Creeper Gate is one of the numerous "smaller" stations of 9,000 to 12,000 acres, established when the old properties of several hundred thousand acres were broken up. Its pastures, with their 12 to 15 inch rainfall, can carry a sheep population of one to four or five acres. The sheep are exclusively merinos, raised only for their wool.

The homestead at Creeper Gate is a neat, compact one-story structure with the characteristic roof of corrugated iron. The ordinary water supply of the station comes from a bore, the pump powered by an internal combustion engine which raises water to an outdoor tank beneath which there is a shower. Precious rainwater for drinking is stored in a smaller tank. Kerosene lamps provided the only light, but electricity has recently been installed. The house has two bedrooms, a living room, kitchen, and bath, and a garage is connected to the main building by a covered breezeway. Wonderfully cool in summer, this screened area becomes the center of family life, a dining room and family room during the daytime, at night a refreshingly cool guest-house for visitors.

My first meal at Creeper Gate featured roast pork from a wild pig fattened at the station. Wild pigs roam the countryside, and a sow with a litter of piglets old enough to get along without their mother is rated a choice game. If the mother can be shot the pigs are taken alive and brought to the homestead where they are penned and fattened to slaughtering size.

Among the Outback residents, shooting is a major diversion. Rabbits are most plentiful and are hunted regularly by the professionals who get as much as four shillings for a pair of pelts. "Rabbiting" is also popular with the station people who drive out on night shoots in an old Model A Ford or a small pickup truck. Three or four of the hunters carry rifles while another with a spotlight sits atop the vehicle. Caught in a beam of light from the moving car, a rabbit will generally freeze motionless, its gleaming eyes making an easy target for an expert rifleman. A night shoot of four or five hours may yield over a hundred pairs of pelts. The rabbit control problem is once more acute in this part of New South Wales; the animals have developed a partial immunity to the miximitosis virus which was so successful in reducing their numbers a few years ago.

The economy of the station and its twelve-month work cycle centers around sheep. My stay at Creeper Gate coincided with the dipping muster. Sheep-shearing had been completed about a month earlier and it was now dipping time, when the shorn sheep are "mustered" then thoroughly drenched with an all-purpose insecticide designed to keep them free of lice and blow flies. These pests bury themselves in the sheep's skin causing intense discomfort, sapping the sheep's strength, and often causing death.

First, the sheep had to be mustered, gathered together from the far corners of the paddocks where they may remain for months unattended. They are very shy of people and their instinct when fleeing from "danger" is to huddle closely together. One man in a vehicle and two or three of us on foot, assisted by a sheep dog, were able to manoeuvre thirteen hundred merinos and pen them by evening of the first day. Next morning thirty-one "woolies" (sheep that had missed shearing a month earlier) were separated from the flock. Then the close-cropped flock was driven a mile and a half to the dipping pen. Thirty at a time the animals were led into the dipping pen, a high-walled corrugated iron enclosure across the top and bottom of

which are pipes, bearing at two-foot intervals nozzles from which the protective mixture is sprayed. The sheep were kept in the pen for three minutes, after which they were turned into a larger pen to dry in the sun. The entire operation was completed before midday; the hot and weary "musterers" were rewarded by a drive to Nyngam for a swim in its beautiful pool.

The following day the newly dipped sheep were started on a two-day drive to a new paddock 12 miles away. The deep blue cloudless sky contrasted sharply with the reddish soil, broken by patches of straw-colored grass and outlined by the rich olive green of the gum trees. As we drove the flock slowly through this lovely landscape, I was keenly aware of being in the heart of the merino sheep country—a part of the Outback in which Australians take such intense pride.

—John G. Rice
University of Washington

Mackenzie Delta Coastlands

In the years since World War II, and particularly in the past decade, Canadian geographers have had the enviable opportunity of participating in Canada's development by undertaking field research in the Canadian arctic. In all, over forty geographers—whose ranks include a few adventurous women—have worked there, the majority on field programs of the Geographical Branch, Department of Mines and Technical Surveys, Ottawa. The Department of Northern Affairs and National Resources, the Defense Research Board, the Arctic Institute of North America, and the Department of Geography, McGill University, have also been active in the encouragement of geographic field studies. In view of the extensive involvement of Canadian geographers in arctic research, a brief resumé of field activities in one part of Canada's northland, namely the Mackenzie Delta Coastlands, may be of interest to our association.

Field parties usually fly from Edmonton to Aklavik in early June. Provisions, equipment, and fuel are made ready, so that the party can leave for the coast by boat as soon as the sea-ice breaks up, which may be any time from late June to mid-July. Geographical Branch field parties have made extensive use of the *Tuhlik* (loon), a shallow draft motor schooner which can sail close to shore along the open coast. Freight canoes (of 19 to 22 foot lengths) have also been used with success both along the coast and for river travel. Inland traverses are made on foot, with supplies and equipment being back-packed. When feasible, the use of Eskimo pack dogs materially increases the mobility of a field party.

The work has naturally varied from year to year so that it is difficult to summarize the research accomplished. Considerable attention has been given to the preparation of photo interpretation keys based upon a detailed examination of the terrain with particular reference to ground-ice segregations, patterned ground, and permafrost. Studies in human geography in much of the area have been impossible, because of the absence of people. However, information has been obtained on various apects of the white fox and muskrat trapping economies, population distribution and growth, and

the mixing of Indians, Eskimos, and "whites." Many small boat harbors have been sounded and mapped. Data on break-up and freeze-up for the coast and the Mackenzie River have been obtained with a view to the analysis and prediction of the physical conditions governing these important events in the life of the people of the north. Numerous physiographic problems have been investigated, both along the coast and in the Mackenzie Delta.

Conditions in the Mackenzie Delta Coastlands, as in many other regions, are rapidly changing, primarily because of the establishment of a new townsite for Aklavik, the construction and operation of the Distant Early Warning Line, and the increased interest of oil and mining companies in exploration and prospecting. In 1954 a new townsite for Aklavik was chosen on the higher land overlooking the east side of the Delta. The new townsite of Inuvik (in Eskimo, "The Place of Man") now resembles a suburban development in a southern town, except for some constructional features dictated by northern conditions. The new airstrip handles commercial planes on a bi-weekly schedule. In summer, rarely a day passes without a plane landing or taking off from Aklavik or Inuvik. The tempo of life has increased to the extent that many an old timer, like some of the early prairie homesteaders, regrets the modern hustle and bustle and would like to move on to less congested areas.

The DEW Line Stations have altered the old feeling of isolation along the coast. More than one field party has been very grateful for the medical or other assistance rendered by personnel at a station. Perhaps the changed conditions, as reflected in the life of Eskimos in contact with a station, may be illustrated by an Eskimo who led a nearly self-sufficient semi-nomadic life several years ago, along with six other families in an area of 25,000 square miles. The Eskimo, who had attended elementary school at Aklavik for several years, has recently written me as follows: "I'm working here for 7 months already. I'm here with my family and drawing rations. I'm driving trucks, cats and so on, not dogs. We have our own shows at my house three times a week and we run it ourselves. The other people are still trapping yet. I think my legs will get weak I don't walk enough. anywhere I'm going its a ride. Life is sure difrent from the old trapping for us. My pay is transfered to the bank every week now. I expect to get some polar bears soon if any come by the garbage dumps."

—J. Ross Mackay
University of British Columbia

Upturn Down Under

It was especially pleasant to be a visiting geographer in Australia in 1958. In addition to the anticipated personal rewards from such an experience, there was the added satisfaction of sharing with my hosts something of their excitement over major academic developments. There are geography departments in every Australian university, but, in keeping with British practice, only when a chair has been established and a professor appointed does a department attain a full measure of strength, permanence, and prestige.

Thus the creation of three new chairs, in a single year was a matter of major significance. All were filled by well-known Australian geographers: Graham H. Lawton at Adelaide, John Andrews at Melbourne, and Richard H. Greenwood at Queensland. These appointments are a solid measure of general academic recognition of the field; they are certain to give new vigor and acclerate expansion at these and other universities.

A further indication of progress, and certainly to some extent a direct corollary, was the formation of the Institute of Australian Geographers. The decision to launch this first Australia-wide organization in the profession was made at an informal session during the Australian and New Zealand Association for the Advancement of Science (ANZAAS) meetings in Adelaide in August. The renowned indefatigable pioneer Griffith Taylor was elected president by acclamation; Keith W. Thomson of Adelaide was elected secretary.

Such healthy signs of academic growth are appropriate to their national setting for Australia is certainly growing and changing in many ways. To mention only a few of the most prominent developments of geographic interest, one might list the reclamation of the "trace-elements deserts"; the major program for water resources development in the Murray system; the greatly intensified scientific study of the Tropical North; the post-war industrialization with its far-reaching national, state, and local implications; and, in some ways the most significant of all, the post-war immigration—the profound though often subtle social and economic impact of the "New Australians." Such developments have all commanded nationwide attention and of course have been topics of special concern for many Australian geographers.

Geographers have likewise responded to the new post-war foreign orientation of their nation. New Guinea, the Pacific Islands, and Southern and Southeast Asia are being given an increasingly prominent place in the curricula, in general research, and in field study.

The attention being accorded these newer developments should not obscure the fact that much new data are being made available, and new ideas are being set forth on matters of long-standing world interest: the particular and often enigmatic nature of Australian geology, soils, vegetation, climate, and ecology.

These brief comments are offered primarily to suggest to American geographers that Australia offers stimulating research opportunities for almost any kind of specialist. While Australia may not be as culturally "exotic" as Africa or Asia, the very fact that it is a society with many obvious broad similarities to our own gives it a special value for some kinds of research. The cultural geographer who undertakes a study of some type of problem which he is familiar with in its American context will probably soon discover all sorts of unexpected and instructive variations and contrasts arising out of the less prominent underlying differences in cultural heritage. Such comparative studies are necessary to illuminate the detailed special features of both Australian and American characteristics. Moreover, with some topics the American geographer will likely encounter differences from state to state which will prompt a healthy questioning of many assumed "Australian generalities.

One thing is certain: The American geographer will find a warm welcome wherever he goes; a hospitality which will not only be richly satisfying personally but highly advantageous professionally. Departments, universities,

libraries, government agencies, corporations, and private individuals will be found ready to help in every way. Faced with no really critical internal social or political problems, Australians are to an unusual degree absorbed with matters of resource development. Enthusiastic about their nation's emonomic future, they delight in having others take an interest in and join with them in any type of study of their land.

—Donald W. Meinig
University of Utah

1958 ANNUAL MEETING

The first meeting of the Association of American Geographers ever held on the Pacific Coast was in August, 1958, with the University of California, Los Angeles, as host. At its Pacific Division, the A.P.C.G. elected to merge its annual program with that of the A.A.G.; some twenty-five of our members contributed to the official program. The banquet address, "John Muir's Image of the West," was given by Honorary President John Leighly, former president of the A.P.C.G. and editor of the *Yearbook*, 1940-1948.

An A.P.C.G. banquet and business meeting were held separately on Monday, August 18, with John W. Reith, retiring Vice-President, as chairman. Reports were presented by the editor and the secretary-treasurer. John Dart, chairman of the nominating committee, presented the names of Francis J. Schadegg for president and Howard F. Gregor for vice-president; they were elected by acclamation. Howard H. Martin, chairman of the committee to investigate the continued affiliation with the American Association for the Advancement of Science, Pacific Division, reported that the ballot was overwhelmingly in favor of retaining this affiliation. The presidential address by Granville Jensen, "The Ejido in Mexico; an Agrarian Problem," is printed in full in this issue of the *Yearbook*.

The next meeting of the Association of Pacific Coast Geographers is scheduled for June 16, 17, and 18 at San Diego State College during the annual meeting of the A.A.A.S., June 15-19, 1959.